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[1] Based on competitive TEC data found in energystar.gov, eu-energystar.org, the HP Carbon Footprint Calculator at hp.com/go/carbonfootprint and manufacturers' published data sheets. [2] For desktop HP LaserJet printers, HP's Auto-On/Auto-Off feature will help imaging and printing customers use 3 times less energy than in a device's normal sleep mode, automatically powering down printers after a period of inactivity and putting them into a mode that uses less than one watt of power. HP will pre-configure printers to power down automatically after a set amount of time, ranging from one to 30 minutes, though Auto-On/Auto-Off technology offers customers the ability to customize and pre-set their own off times for the printer. This proprietary technology works in concert with Instant-on Technology, which enables customers to produce the first page faster when a printer is coming out of sleep mode. Based on comparison to the HP LaserJet P1005 Printer. [3] HP Auto-On and Auto-Off capabilities subject to printer and settings. [4] HP Smart Install works with Windows® only.

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You *will* pay for that (part 2)

In May 2011, I wrote a column titled "You will pay for that". It was a column about how piracy is slowly dying, but I left a thought unfinished "for another time". That thought was about how the entertainment industry claims piracy has killed profits for everyone, and is akin to stealing. I'm returning to the topic, because recent developments suggest that this is indeed "another time".

I want to start with piracy, and what it really does to the world. Think about the poor entertainers and the entertainment business as a whole – with millions of people stealing their precious creations, there are billions of dollars lost in potential sales. Is it fair that our beloved stars have to settle for smaller mansions and own fewer Bugatis or Ferraris? Aren't they struggling enough? If we really think about it, if we paid those billions of dollars to legally buy their art, a few more African kids might end up being adopted by super-star parents. Now because you downloaded a movie that you'd rather not waste money on, or an album that you'd never really listen to anyway, this does not happen.

Shame on you...you scum of the earth, you...you...pirate!

Thankfully, over the past few months, a much-loved group of people (politicians) from the world's largest democracy (us) and the world's richest democracy (US) have started announcing what they think is needed to bring sense to the absolute chaos that is the internet. It's about time someone stood up for the poor, starved of Caviar-and-Cuban-cigars, entertainment industry guys, and stopped us pirates from ruining the world. After all, it's the debauchery and excessiveness of our overtly-comfortable lives that's bringing the world economy to its knees.

Our technology minister rightly gave Google and Facebook a proverbial rap on the knuckles when he demanded that they screen all our useless user generated content, and remove anything that's illegal or objectionable. Who do these companies think they are anyway? Google can't just keep sending spiders around the net to find everything. After all, some things just aren't meant to be found. Similarly, Facebook can't just allow us to go about saying and doing anything we like online – what if it offends someone important, questions a set belief or forces people to think for themselves? Can't have that can we? After all, didn't all those freedom fighters (who we've all but forgotten) dedicate their lives to fighting for our right to be silenced by the authorities?

While India ponders over finding the right moral path online, in the US it's a little more simplistic.

Many of you would have already read about SOPA (Stop Online Piracy Act), but for those who do not know, it's an act that the US senate wants to introduce in order to prevent or control piracy online. There's another act that's also being presented called PIPA (PROTECT IP Act - Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act), which is similar. For those of you thinking, "Who cares what they do in the US – I'm Indian!", you should know that the US basically runs the Internet, and almost all major companies whose services you use on a daily basis are based in the US, so yes, this affects you too.

The US government wants to ban pirated material, or copyright infringement, or anything illegal that exists on the internet outside the US borders. Since foreign companies that host such content cannot be brought into a US court and sued, the US wants to be able to cut them off. It is demanding rights to be able to direct ISPs and their DNS servers, search engines such as Google, payment gateways such as PayPal and services such as AdSense to ignore, block and basically ban sites which the US government deems to have infringed on copyrights.

It's not just about piracy of course, because if all goes as planned, those pesky little start-up businesses will rightfully suffer as well, because they'll have to factor in the additional costs of policing user-generated content – comments, picture posts and videos. Thankfully, we'll be able to create a monopoly for the existing biggies on the internet. It's not like big companies are evil or anything... they'll probably put social needs first, and protect the sanctity of the internet. Unlike those Occupy Wall Street protestors, standing in the way of progress, the magnanimous big corporations will help get you your entertainment fix, give you the latest gadgets at perfectly acceptable premium prices, and do a lot more good – make profits for their poor, hard-working investors, for example.

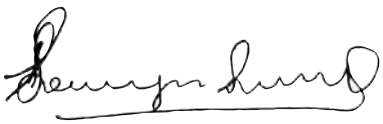


Robert Sovereign-Smith
Executive Editor
editor@thinkdigit.com

"The US government wants to ban pirated material, or copyright infringement, or anything illegal that exists on the internet outside the US borders"

And why shouldn't the governments of the world look after the needs of the rich? After all, they pay more taxes, and are potential contributors to election campaigns...unlike us working class people who just create a mess, do all the dirty work, and vote these chaps into office.

Personally, I can't wait for all the goodness that the governments in question will bring to the internet by controlling it. The net is way too popular for all the wrong reasons anyway – creativity, freedom, unrestricted thoughts, humour and intellect. Who needs that crap here in backwards-land, right?



Liked or hated this column? Write in to *editor@thinkdigit.com*, and express yourself.

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Intel Core i7-3960X
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Pegasus R6
Samsung Galaxy Note
Samsung Wave III
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Sony E363 Walkman
Vu 55-inch Super TV

Tablets Comparison Test

Acer Iconia Tab A500
Acer Iconia Tab A501
Apple iPad 2 (WiFi only)
Apple iPad 2 (WiFi + 3G)
ASUS EeePad Slider
ASUS EeePad Transformer
Beetel Magiq
BlackBerry Playbook
iBall Slide
Lenovo IdeaPad K1
Mercury Mtab
Motorola XOOM
MSI Enjoy 10
Reliance 3G Tab
Samsung Galaxy Tab 750
Sony Tablet S
Viewsonic ViewPad 7e

Point and Shoot Camera Comparison Test

Canon Powershot SX 40HS
Canon Powershot SX 220HS
Canon Powershot S100
Canon IXUS 230HS
Canon Powershot SX 230HS
Canon IXUS 310HS
Fujifilm Finepix S3300
Fujifilm HS20 EXR
Nikon Coolpix P300
Nikon Coolpix L120
Nikon Coolpix S8200
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Nikon Coolpix P7100
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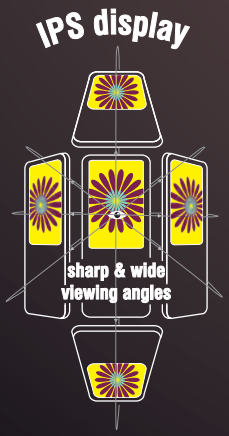
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Chinese hackers resurface
According to sources close to WSJ, some Chinese hackers have allegedly attacked the US Chamber of Commerce and stolen sensitive data

Feedback about the December 2011 issue of Digit



✉ I had been a technology fan for a long time and when Digit fell into my hands, it was like a new portal for me. Seriously, I have been reading Digit for just past two years, and I gained more knowledge than I ever got before! Thanks to Digit, I won the first prize in a presentation titled "Technologies Around The World", some of which I found in this Year's anniversary edition.

Would like to give some suggestions too though. I've felt that out here technology or technical know-how is synonymous with software and related things. But there more to technology than just that; like the tools used for designing stuff, like the dremel tool which was first published in a DIY fast track earlier, but later on I couldn't see it anywhere. I would like you to give more information about such tools like cost where to buy etc. Also, you could also mention some of the technologies being used in automobiles, like the ABS,Anti Lift off etc. Just few humble suggestions!

Leaving the rest, The Team Digit is great and kudos to you!

Piyush Phalak

d Congratulations on winning the first place in the presentation competition. It really humbles us when we know that our magazine has enabled you to achieve success in the tech world. We had done an article called 'If Cars Could Talk' in August 2011 which discusses some cutting edge automobile-tech. As for the dremel tool you'll be able to order it online from websites like eBay. It costs upwards of ₹5000 but ads for cheaper replica's are often seen in newspapers.

Sambhav

✉ Well I've thought about writing to you for a long time, but this month you guys have done a fantastic job and you deserve it. I want to see a similar edition in January. I am your hardcore fan. I can rely on digit when it comes to technology. The FT on Artificial intelligence was good. And my friends ask me advice for buying a good PC or GPUs. Once again I hope that you will become worlds best tech magazine .All the best for your next challenges.

Shreeharsh Halvi

d Look out for this month's Fast Track as well, we are sure you will like it as well. Feels wonderful to be appreciated and well, you will be the go-to guy for all PC queries, till none of your friends read Digit.

Jayesh

✉ I am really a big fan of your website and magazine. You guys are doing a tremendous job!

I am a developer and have recently built an app to fight hunger in India. Hunger is the no. 1 cause of death in our country. Everyday thousands of people go to sleep hungry unable to earn a decent meal for them and their families.

Using this app, users can donate a cup of staple food through the UN World Food Programme free of cost with just 1 tap!

Please let me know what do you guys think about it and how I can improve it to help the cause.

Here's the market link - https://market.android.com/details?id=com.bhookh&hl=en

Thanks,

Mustafa Ali

d This is a very good initiative Mustafa. We have already asked our resident Android user to use this app and we hope many more readers will download it and help you in your noble initiative.

Jayesh

✉ Dear Editor,
I could not buy some issues because of my health problems but when I purchased the December issue of Digit, I was amazed to see that its selling price was at a whopping ₹250. I tried to remember those days when your magazine was available for ₹100. I started noticing what you had increased in magazine, the DVD's and the no. of pages.

No I am a Mac user and the 3 DVDs that are bundled with the magazine have no use for me. I would rather there was more content in the magazine. Most of the software pertains to Windows OS, so you see my dilemma. I hope that you decrease price or try bring the price to at least `200 in upcoming months.

Thank You

Naman

d Printing a colour magazine is expensive and for special issues which have more pages than a regular issue, alongwith goodies like an extra DVD, it really shoots

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2564 FPS @ 1080p
Tom Guilmette is stuck in a Vegas hotel room with a new Phantom Flex high speed digital cinema camera, see the results for yourself **http://bit.ly/uAVftd**

up production costs. So we have to try and keep a balanced selling price. Only our special issues are priced at ₹250, whereas our regular issue costs ₹150 only. As for the DVDs, well majority of our readers use Windows and Linux, so we have to provide software pertaining to these OSes.

If you feel that the DVDs are not useful for you, then you can opt for our subscription plan which only includes the magazine. That ways, you will just get the magazine and it will also work out to around ₹100 per issue (that includes special issues as well). Go to this link for more details - http://www.thinkdigit.com/subscribe.php

Nimish

✉ I have been reading Digit since the last year and a half. I find the content to quite good. I am quite interested in reading about successful tech personalities and how they achieved technological success. It is fascinating to read how someone like Zuckerberg went from a college student to becoming a billionaire.

I would request you to have at least one personality featured each month. You can dedicate two pages to this story each month.

Digit has always helped me to discover something new in the tech world and every issue teaches me something. I really like the snippets above each page, they make for an interesting read.

Dhaval Lotia

d We do feature personalities from time to time. In fact, in our December 2011 issue, you will find nuggets of information on lots of important tech personalities such as Steve Jobs, Sid Meier, Gordon Moore, Richard Stallman, Amar Bose among others. In August 2011, we had featured the guys who made it big in the world of open source computing. As for a dedicated section for personality profiles, now that sounds like a good idea. We will surely discuss it in our edit meets.

Nimish

✉ Hi Team Digit,
Here's some feedback:

1. DVDs are excellent. The complaint about font size remains.
2. Digit tie-up with PC Mag needs to be reconsidered when the contract ends. The Digit team is as good as any. Have some self esteem guys. The money you pay to PC Mag can be spent on yourselves or better still, pass on to the readers.
3. A-Z Tech / PC Software : If you have a PC you have a Drive. Power DVD and Nero is a must on every PC. So is Winamp, DivX and Quicktime Why didn't you include Power DVD and Nero? Please let me know. Power DVD is the King of all players (includes VLC) and Nero is the King of all burners. And both come free when you buy a drive. No software list is complete without these two.
4. Congrats for the Dec-2011 issue.

Krishna

d Thank you for your valuable feedback. Lets address your feedback one by one shall we?

1. Thanks. We're working on that niggle.
2. Thanks for the vote of confidence, however the content arrangement is keeping in mind a specific purpose - provide our readers with a global perspective in technology. Although we can tap into the pulse of the Indian market fairly well, at times a first hand global perspective goes a long way.
3. Indeed Power DVD has its uses, but it's debatable whether one can call it the King of all players. Do give media player classic with the K-Lite Codec Pack a shot.
4. Thanks again.

Jayesh

LETTER OF THE MONTH

✉ I've no complaints or arguments. I just want to share my experience with you guys.
I purchased my first Digit copy two years ago. I was at the Old Delhi railway station and was waiting for my train.Surprisingly,the train was 3 hours late and I always hated to wait at the railway station. Bored with all the loud noise of approaching trains around me, I saw a magazine vendor just in front of me. Out of all the magazines, Digit was eye-catching. I was not interested in technology back then. I just bought it to pass some time till i got my train.

I jumped with joy to find a magazine, a Fast-track and two DVDs for just 150 rupees.

The magazine had interesting content on each page and i was hooked instantly. Before i realised, i had finished the entire magazine in three hours flat, and learned so many new things!

Later that year,I asked my mom to purchase a laptop. And then I got inclined more towards technology. It's Digit's fault (in a positive way) that my friends in the locality call me Techie Ahmad.

Keep up the good work guys. You are doing a wonderful job. And for the Digit Collector's Edition 2011,no praise is enough.

Happy New Year & Happy Christmas in advance.

P.S.I am thankful to God that the train was late that day.

Hasbir Ahmad, Srinagar

d Haha we thank god for the late train as well. It feels wonderful to hear stories from our readers who accidentally came across Digit and one issue was enough to convert them into Digit loyalists. We always strive for the best as we know we have high expectations to fulfill. As for the Techie Ahmed part, well that is a part of being a Digit reader:) The only escape from that is by asking your friends to read Digit as well. But we doubt, you would want to let go of the Techie Ahmed tag anytime soon. If you liked our December issue, we are sure you will love this one as well. Read up on the latest cameras and tablets in this issue and our wonderful cover story as well.

Jayesh

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Samsung's 2.0GHz dual-core SoC
Samsung has announced the Exynos 5250, a 2GHz dual-core processor delivering twice the performance of the 1.5GHz powerhouse in the S2. **http://bit.ly/w2dCgl**

The First Sony Xperia?
Pictures of a device called the Xperia Nyphon have been leaked online, featuring what looks to be solely-Sony branding, without Ericsson. **http://bit.ly/rVhj8W**

Aakash tablet goes on sale online; pre-orders for UbiSlate 7 begin

The much-awaited ultra low-cost Aakash tablet is now up for grabs, as DataWind makes the tablet available for online purchase. The Aakash, also touted as the world's cheapest tablet, has been priced at ₹2,500. DataWind is promising delivery of the tablet within seven days. Moreover, the company has also started taking pre-orders for the upgraded model of the Aakash a.k.a Aakash 2 or UbiSlate 7, which has been priced at ₹2,999. The susbsidised Aakash tablet is likely to cost ₹1,750.

The Aakash tablet runs on Android 2.2 Froyo operating system. The Aakash has a 7-inch display with 800x480 pixel resolution. For connectivity, it has built-in Wi-FI support and can connect a datacard for 3G and GPRS connectivity. The storage of the device can be expanded up to 32 GB via microSD. It has a 256 MB RAM. The device supports document formats: DOC, DOCX, PPT, PPTX, XLS, XLSX, ODT, ODP and can run PDF viewer, Text editor. It has a 2,100 mAh battery which is promised to give 3 hours of backup depending upon usage.



The UbiSlate 7, which is expected to be launched next month, features both GPRS and Wi-Fi. The UbiSlate 7 will also have the functionality of a mobile. The processor will be upgraded to 700 MHz, which will apparently be "three times better" than the original Aakash in performance. The tablet will also come with a 3,200 mAh battery, which is expected to give a back up to 5 hours. It comes with a headphone/mic plus integrated speaker.

Sony Tablet S and Tablet P launched in India

Sony India has officially announced two products - the Tablet S and the Tablet P. Both products have very unique designs. As for pricing, the 16GB Sony Tablet S Wi-Fi model is priced at ₹29,990, while the Wi-Fi + 3G model will retail for ₹33,990 when it will launch in mid-January. The 4GB Sony Tablet P only comes in a Wi-Fi + 3G model, which has been priced at ₹36,990.



The Tablet S has the wedge-shape design and is the first tablet to have received the PlayStation certification. The S has a 9.4-inch display. The folded wallet design of the Tablet P allows Sony to offer two 5.5-inch each display on the tablet. The idea is to allow a better distribution of the controls - for example, the email window will be on one screen and the keypad will be on the other. The displays on both tablets have what Sony's patented TruBlack technology that allows for deeper and uniform black levels.

The "throw" feature lets you send music, videos and pictures to any DLNA compatible device on the same network - TVs, home theatre, speakers and even PCs. Sony India has also preloaded the tablets with a lot of apps.

Unique to the Tablet S is the universal remote application that allows you to control almost any gadget at home.

Nokia India launches mobile wallet service, Nokia Money

Nokia has launched its mobile wallet service, Nokia Money, in India. The new service aims to provide a secure and convenient option for money transactions via mobile phones. Nokia Money will help make payments without the necessity of having a bank account. Users can make various basic financial payments such as utility bills, mobile top-ups, insurance premiums and train tickets through SMS and without the need for an Internet connection.

To avail Nokia's mobile wallet services, customers need to visit the nearest local authorised Nokia retailer, who can set up the service on their phone. The customer then needs to pay cash to the agent and gets the cash transferred to their phone.



Nokia further clarifies its Nokia Money service is independent of network carriers and individual banking networks. The service is available for all handsets in India and works with almost all Nokia phones.

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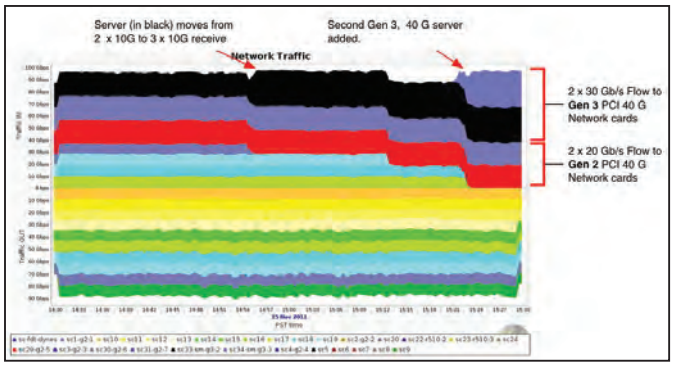
Nokia to Sell Vertu
According to the Financial Times, the Finnish mobile giant is looking to sell its luxury phone spinoff - Vertu - in 2012. **http://bit.ly/tXXD4U**

Tell Me Like Siri
Microsoft says it has had Siri-like tech for more than a year, since it launched its voice-recognition app, TellMe in 2009. **http://bit.ly/vah4Lj**

Scientists achieve 186Gbps transfer rate across standard fiber optic line

Heralding a practical new way to transfer data at unprecedented speeds, scientists from Caltech and the University of Victoria have achieved a sustained data transfer rate between computers of 186 Gbps, across a standard, commercially available fibre optic line.

The team of researchers consisted of scientists from various fields, including high-energy physics, computer science, and engineering. The 186 Gbps transfer rate (98 Gbps in one direction, 88 Gbps in the other) was achieved over a 100 Gbps bidirectional fibre optic line that stretched 217 km from the SuperComputing 2011 (SC11) convention in Seattle, to the University of Victoria Computer Centre in Canada.



The Caltech team at SC11 used 13 servers and 40 Gbps LAN connections, while University of Victoria team used 10 servers and 10 Gbps LAN connections to achieve the two computer-to-computer data transfer rate records.

The first record, the 186 Gbps data transfer rate (~23.25 GB/s) was achieved in a memory-to-memory transfer, while the second, 60 Gbps (~7.5GB/s) was achieved in a disk-to-disk transfer. Real world applications for such speeds already exist, with many scientific projects across the world needing to share petabytes of data with other institutions. d

Beetel launches Magiq Glide, an Android 2.2 tablet priced at ₹11,999

Beetel Teletech has launched a new tablet called "Magiq Glide". The new Beetel tablet runs on Android 2.2 Froyo operating system and has been given an MRP of ₹11,999. Beetel had previously launched Magiq and Magiq II tablets.

The new Magiq Glide tablet comes with SIM calling feature. It also features a 7.0-inch WVGA screen, 2MP front facing and a rear camera. As



for storage, it has 8GB internal memory, which is expandable up to 16 GB. The device comes with a 2,200 mAh battery and supports Wi-Fi and 3G. The Magiq Glide is powered by a 1 GHz processor for faster processing speed. The tablet also features access to the Android Market. d

Microsoft India launches software tools for disabled persons

Microsoft India has launched a set of 40 templates for most commonly used software to help visually, hearing and learning impaired people. These templates automatically create accessible documents for the disabled people. With an objective to increase the job prospects through skill development, the software major has also launched 'Microsoft Office Specialist Certification' programme for impaired persons.

These tools have been specially created for the software used for public distribution circulars, forms, gazettes and notifications. The Microsoft tools will also help create accessible templates for such documents as laws, policies, officer orders/notifications, census data and others. d

Samsung buys out Sony's stake in S-LCD joint-venture

Samsung is buying out Sony's stake in their LCD joint-venture, S-LCD Corporation, formed back in 2004. The venture hasn't been working very well for Sony, which has reportedly been making a loss in the market for the past seven years. Sony had to contend with a weakening Japanese currency, and lowered profit margins in the face of falling prices since 2008. Samsung on the other hand, has grown to become the largest manufacturer of LCD and flat screen televisions in the world.

The Korean giant is reportedly buying Sony's stake for paltry sum of roughly $939m.

Sony will still procure its LCD panels from Samsung, at market prices, Samsung on the other hand, will gain "heightened flexibility, speed and efficiency in both panel production and business operations" with its full ownership. The LCD panel industry has seen a lot of scope in last couple of decades, used for more than just television sets, from cameras to computers, and mobile phones. d

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*PassMark Software, "Consumer Antivirus Performance Benchmarks (2012)," September 2011

India wants Facebook, Google to monitor user content

The Indian government wants operators of social networks, including Facebook and Google, to start monitoring user content and remove any offensive material that is hateful, threatening, incites violence or contains nudity. Indian Telecom Minister, Kapil Sibal recently



met officials of the internet companies, including Yahoo and Microsoft, asking them to set up a monitoring mechanism.

Talking to reporters, Sibal revealed that he had asked the internet companies in September to remove offensive images and statements which they didn't adhere to.

The minister also denied a New York Times report which said that the government wants to "censor" user content. "This is far from the truth. If someone doesn't want to remove this kind of incendiary material then the government has to do something about it," said Sibal.

While Facebook agrees, Google India took an altogether different stance, with its history of liberal principles:

"We work really hard to make sure that people have as much access to information as possible, while also following the law. This means that when content is illegal, we abide by local law and take it down. When content is legal but controversial we don't remove it because people's differing views should be respected, so long as they are legal."

Microsoft Internet Explorer to get auto-updates from January

Microsoft will begin rolling out silent auto-updates to Internet Explorer across platforms in January, beginning with Australia and Brazil. This will allow the company to finally make users upgrade their Internet Explorer to the latest version available for their operating system.

In other words, Windows XP users still on IE6 or IE7 will be auto-updated to IE8; Windows Vista and 7 users still using IE8 will be auto-updated to IE9. The auto-update will require. Automatic Windows Update to be turned on however, and users won't be forced to move, with Microsoft also announcing IE8 and IE9 Automatic Update Blocker toolkits to stop auto-updates. Users can uninstall the latest auto-update at any point.

Microsoft's latest move is a leaf out Chrome's book, with auto-updates now being almost silently applied. We'll have to wait and see if the company decides a similar rapid release cycle however, though in the past, it has been vehemently opposed to it.

YouTube redesigned, targets students

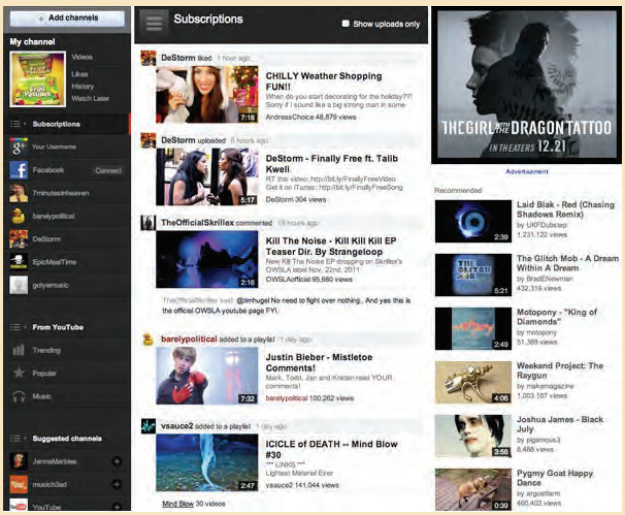
YouTube has received a major design overhaul, aimed at making the popular video sharing site much simpler to use. The overhauled YouTube now has a new home page with a greyish background, similar to other recently updated Google products.

YouTube's Channel page has received one of its biggest updates since its launch, helping users find more relevant videos. You can also browse recommended channels, personalise home page feeds and link up to social networks such as Google+ and Facebook. Personalised YouTube channel line-ups on the new left panel of the YouTube homepage is one of the newer features. In view of different goals of the uploaders, YouTube has also added an improved Channel templates feature.

The home page feed has been pushed to the centre of the page, letting users switch easily between different channels.

The video sharing site also launched YouTube for Schools, a new service targeted at institutions of learning, featuring educational videos with no distractions and only relevant content eing shown. It can be found at youtube.com/schools. Google aims to deliver a platform where teachers would be able to show their students the "vast array of educational videos on YouTube," without being worried about distractions in the form of irrelevant or inappropriate recommended videos.

The new service is more "a network setting for school administrators," restricting access to educational content only. This includes subject-aligned playlists from more than 600 partners, including MIT, Smithsonian and TED, content that was previously also found on the YouTube EDU site, along with university-level content. YouTube for Schools will launch with more than 300 subject playlists from English to Science, sorted by grade level. This can be found at youtube.com/teachers. Teachers can also suggest their own playlists.



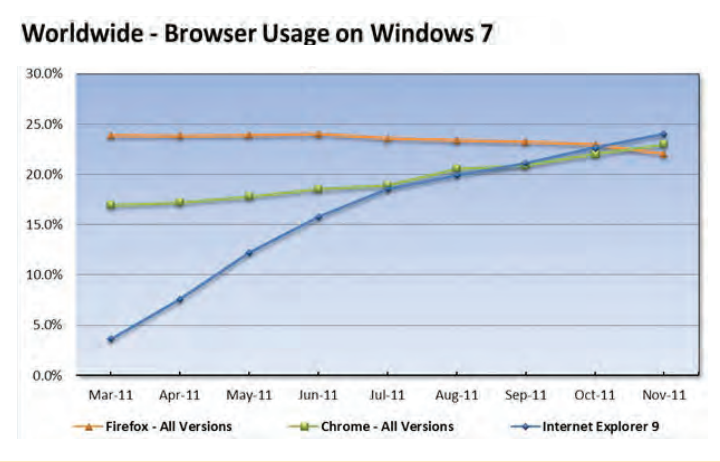
Security Watch
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Facebook wants to help
A reporting tool allows users to help friends with suicidal behavior on Facebook, enabling them to chat directly with a counselor **http://bit.ly/tIKe6D**

Chrome surges past Firefox to become World's no. 2 Internet Browser

Google Chrome has surpassed Mozilla Firefox to become the World's No. 2 Internet Browser, after Microsoft Internet Explorer, revealed latest stats released by StatCounter. Chrome grabbed 25.69 per cent of the total market share in November, while Firefox managed a share of 25.3 per cent. This is the first time Chrome has edged out Firefox in the browser popularity wars. Internet Explorer has a 40.63 per cent of the market share worldwide.

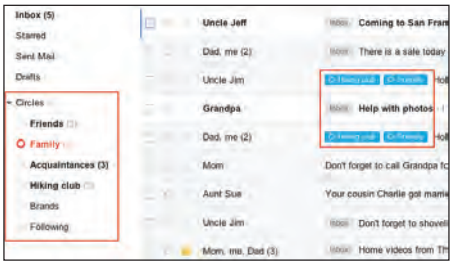
The stats measure actual browser usage, not downloads, so while Chrome has been highly effective in ensuring downloads, the figures show that people are actually using it to access the web. This is a massive accomplishment for Chrome, which was launched just three years ago. Opera, the other major browser, has been making efforts for a long time to join the top league but still has managed less than two per cent of the market share worldwide.



Google launches Foursquare rival, integrates Google+ further

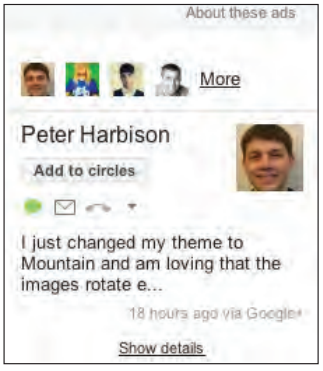
Google has taken on the location-based social network Foursquare with the launch of Schemer.com. Also considered an answer to Facebook's "Events", it allows users to select activities they are interested in, and share details. Apart from keeping track of completed activities, the web site will also recommend new schemes depending on users' interests. The site is in beta-phase and an invite-only product presently.

Google+ is now integrated with Gmail and Contacts. Managing contacts and email is inherently social, so it isn't much of a surprise. You probably don't want everyone in your contacts list on Google+ – Google learned that from the Buzz fiasco – but might still want your contacts automatically updated.



Google Contacts now also uses your Circle information to organize your contacts. This doesn't remove your existing contact groups, but overlays another management tool over the existing one. So now it's possible to view contacts within a Circle.

Google+ Circles have reached Gmail too. In addition to your labels for filtering email, Gmail now offers Circles as a filtering option. Gmail now also allows you to add someone to your Circles right from the contact widget on the right of the interface. Also new is the ability to share photo attachments on Google+. Now if you get an image attached to an email, you can just click on a button to share it on Google+.




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HTC Rhyme launch

The 3.7-inch HTC Rhyme has been launched in India at ₹29,990, running Android 2.3.4 on a 1 GHz Scorpion processor **http://bit.ly/vM4jfK**

Motorola Dinara XT928

Currently exclusively for China, the Dinara has a 4.5-inch HD display, 1.2GHz dual-core processor, and a 13MP camera **http://bit.ly/rrjTx1**

Apple's iPhone 4S hits store shelves in India

Apple's much-anticipated iPhone 4S hit Indian retail shelves at the end of November, approximately a month after it was unveiled in the US. The iPhone 4S has, so far, received a mixed reaction in India; mainly because of its extremely high price, as compared to other nations including the US and the UK. The device is available in three variants, 16 GB, 32 GB and 64 GB. The 16GB variant of the iPhone 4S is priced at ₹44,500, while the 32GB iPhone 4S is available for ₹50,900. The 64 GB variant of the iPhone 4S comes with a price tag of ₹57,900.



Apple's iPhone 4S runs the latest iOS 5 operating system. Apple, however, had to release an updated iOS 5.0.1 version after several iPhone 4S users abroad complained of battery life issues. The updated operating system has also brought various improvements to the platform.

The iPhone 4S has a 3.5-inch retina display, with a resolution of 640 x 960 pixels. The 4S is equipped with an 8MP camera that records 1080p HD video. The iPhone 4S has 1 GB of RAM and is powered by ARM Cortex A9 dual core 1 GHz processor. The most talked-about feature of the iPhone 4S is personal voice recognition assistant Siri. As we previously reported, Siri is limited outside the US and is likely to get full-functionality by 2012.

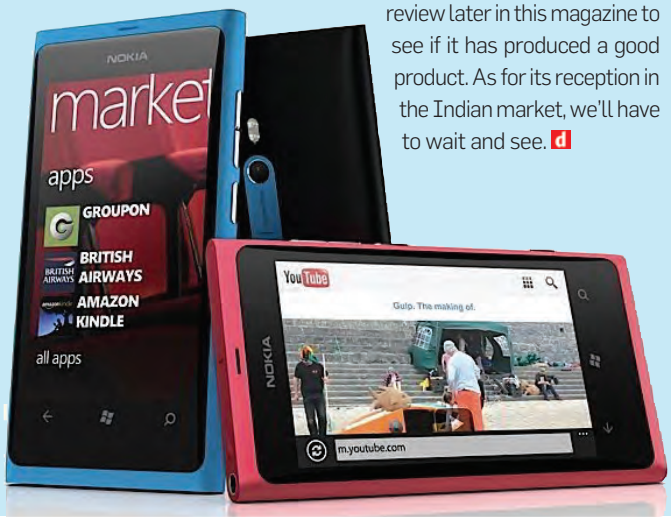
In India, the iPhone 4S is available with Airtel and Aircel. Meanwhile, the price of the iPhone 4 has been revised. The 16GB variant of the iPhone 4 is available at ₹35,500, while the 8GB iPhone 3GS is priced at ₹20,900.

Nokia launches Lumia 800 and 710 in India, with extensive promotional campaign

Nokia has launched its initial Windows Phones, the Lumia 800 and Lumia 710 in India. Priced at ₹29,999 and ₹18,999, respectively, the devices will be available in metro cities right away, and should make it to more than 100 other cities by the end of January, according to Nokia India Director (Marketing), Viral Oza.

Nokia's Amazing Everyday campaign is one of its most extensive till date, with the Finnish mobile manufacturing truly trying out of the box approaches when it comes to advertising for the devices. This included everything from helicopter rides to music and dance concerts, and even a toll tax exemption for a couple of hours on launch day. The company has a lot invested in the launch of the first Nokia Windows Phones, with many hopes riding on the success of the Windows Phone platform.

Many experts feel the company is putting all its eggs in one basket, by limiting itself exclusively to Windows Phone. Don't miss our review later in this magazine to see if it has produced a good product. As for its reception in the Indian market, we'll have to wait and see.



Vodafone Smart launched in India for ₹4,995

Vodafone has launched its Android-based 3G phone, Vodafone Smart, in India. Priced at ₹4,995, the Vodafone Smart runs on Android 2.2.1 and is powered by the Snapdragon S1 processor. The telecom operator, which previously launched Vodafone Blue, aims to target tech-savvy users, as the phone features new mobile apps, games, internet and social networking tools on the go. Vodafone is offering the device with a two-year warranty.

The Vodafone Smart features a 2.8-inch capacitive touch display and a 2 MP camera. For connectivity, the phone supports Wi-Fi, GPS and Bluetooth 2.1. The Vodafone Smart has just 130 MB of internal storage, though the device packs with a 2 GB memory card. The internal storage of the device can be expanded up to 32GB via microSD card.



Vodafone is, however, not the only telecom operator to offer budget 3G mobile phones. Idea, another telecom giant in India, recently launched two Android-based budget 3G smartphones, Blade and id280. Back in August, MTS launched mTag 3.1 and MTS Livewire, budget smartphones in the sub ₹5,000 category.

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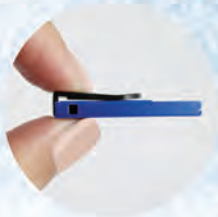
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HTC Sensation upgraded
The upgraded HTC Sensation 'XE' is here, at ₹35,490. It comes with a larger battery, faster processor and Beats Audio **http://bit.ly/w0wfFp**

Super-sized Sensation
HTC has also launched a larger version of the original Sensation, the 4.7-inch HTC Sensation XL, at a staggering ₹38,799 **http://bit.ly/s0Wtst**

Nokia launches Asha 200, 300 and X2-02 in India

Nokia has launched its Asha 200, Asha 300 and X2-02 phones in India. With the Asha 200 and X2-02, Nokia has expanded its dual SIM portfolio of feature-rich affordable phones, and, they come with the Nokia Music Unlimited service for feature phones.



The Asha 200 and X2-02 have been priced at ₹4,759 and ₹4,163 respectively. They come with the new Nokia browser pre-installed, along with a collection of web apps, and Nokia Life tools. The phones have expandable storage capabilities of up to 32 GB with microSD cards. Moreover, these two devices have the Easy Swap feature, allowing users to swap SIM cards without having to turn off the phone or remove the battery. The X2-02 has a 1,020 mAh Li-Ion battery, which is supposed to give talktime of 9.7 hours. The Asha 200 comes with a 1,420 mAh Li-Ion battery and gives a talktime of 7 hours.



The Nokia Asha 300, priced at ₹7,409, boasts of a touchscreen and keypad to make it easier to text and message friends. Nokia says its Asha 300 is one of the first mobile phones to feature the popular game, Angry Birds, pre-installed . The Nokia Asha 300 has 3G access to the internet and thousands of apps in the Nokia Store. Music lovers can enjoy the Nokia Asha 300's music player, built-in FM radio and Bluetooth connectivity.

Google Maps 6.0 for Android gets indoor maps

The latest version of Google Maps for Android (v6.0) now gives users the ability to navigate indoors, with new maps for indoor locations. Businesses and institutions interested in uploading their floor maps can check out maps.google.com/floorplans.

Google Maps 6.0 for Android, available for both tablets and smartphones, will now display detailed floor plans of any building where they're available. If you're inside at the moment, it will provide your approximate location in the premises with My Location's blue icon, accurate to a few metres.

The Google Maps team has already mapped some important stores and public places in the US, with such locations as Macy's, Ikea, The Home Depot, Bloomingdale's, San Francisco International Airport, Narita International and Chicago O'Hare Airport, to name a few.



Samsung Galaxy R price dropped to ₹21k

Samsung's latest Android smartphone, Galaxy R, has been spotted selling on flipkart.com at a price tag of `20,999. It's notable that the Galaxy R was launched in October this year for `26,990. The price cut comes at a time when handset manufacturers are reportedly looking to increase prices of their smartphones because of the rupee depreciation.



To refresh your memory, the Galaxy R, also touted as the cheaper version of Galaxy S II, runs on Android v2.3 operating system and is powered by 1 GHz dual-core ARM Cortex A9 processor. The Galaxy R a.k.a Galaxy R I9103 comes with a 4.19-inch touchscreen with 480 x 800 pixel resolution, 5 MP primary and 1.3 MP secondary cameras. It has an internal storage of 8 GB and can be expanded up to 32 GB via microSD card. For connectivity, the device supports GPRS, EDGE, 3G and Wi-Fi. It has a 1,650 mAh battery, which is supposed to deliver backup of 22 hours in 2G and 9 hours in 3G network.

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pulsar 10 YEARS OF LEADERSHIP



2001
The birth of the Pulsar twins created a whole new segment called sports biking.

2003
The revolutionary DTS-i technology was introduced. The Pulsar twins quickly ruled the hearts of bikers across the nation, outselling competition by over 3 times.

2004
The Pulsars got 17" alloy wheels, nitrox suspension and the patented 'ExhausTEC' technology. Styling was made more cutting edge with an "all black" Pulsar featuring a broader rear tyre and tyre huggers.

2006
For the first time in any sports bike in India, digital speedometer, back-lit switches, self cancelling indicators, LED tail lamps were introduced. Pulsar sales crossed the 1 million mark. The Pulsarmania had begun.

2007
The Pulsar roared through the 200cc barrier creating a new generation of bikes and bikers. The 200cc Pulsar with a meatier exhaust and aggressive looks; followed later by the 220cc DTS-Fi set the pulse of bikers racing.

2009
As it crossed the 3 million mark, the Pulsar twins got more power and more features. The Pulsar 220cc carb version was introduced, aptly called "The Fastest Indian".

2010
2010 saw the birth of a new 135cc Pulsar powered by a 4 valve DTS-i engine. It introduced more bikers to the thrill of biking, taking the number of Pulsars on road to over 4 million.

2011
India's No.1 Sports bike got sportier with stylish Speedlines that took the total number of Pulsars on road close to 5 million.

www.mypulsar.com | www.facebook.com/mypulsar | www.youtube.com/user/pulsarmaniacs

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O&M 11740

Hard drive shortage pushes up prices
Thailand floods hit manufacture of hard drives, pushing up prices for internal and external drives http://bit.ly/vzXvyT

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http://bit.ly/spgJNr

Editions by AOL: Review

The latest entrant in the iPad newsreader category, Editions does bring a very attractive design with it. Very customizable as well, and delivers your daily news packaged as an edition at a preset time daily

Vishal Mathur
vishal.mathur@thinkdigit.com

The Editions by AOL is a newsreader app that is trying to take on established players such as Flipboard and Zite. You can download Editions by AOL from the Apple App Store – it's about 20 MB. Once that's done, you're immediately asked to connect to a host of social networks – Facebook, Twitter, Linkedin, AOL/AIM and Instapaper. You can choose to set this up now or skip it altogether, and then you can get on with customising the sections that you want in your daily edition.

By default, you're given six news topics, but you can add or remove as many as you like.

Even though the weather report feature only works in the US and Canada, for now, it's something that is an interesting, but useless, add-on. Facebook integration is done well and shows up quite often – for example on the second page of the daily edition. However, any changes that you make today, will only reflect in tomorrow's edition.

The interface for the app is absolutely gorgeous – the white background makes it extremely comfortable to read, and the fonts provided display well. We did find that the size of the body text of a story (not the headline) is a little too small to be universally acceptable.

Flipping through the daily edition is a relatively simple task – just like turning over the pages of a book. Every page has a headline, some pictures and a part of the story. To read more, you click a story which will take you to the original link – all inside the app, no web browsers popping up here.

Even though you have to set categories in the initial settings, you can still add specific web sites to each category as and when you please.

Interestingly, some of the advertisements within the edition are 3D. and interactive.

You have the freedom to set the time of day at which you want the daily edition to be downloaded to your iPad. Everyday, a new edition is downloaded, and the previous ones also remain available for you to read.

Even if you're already using another newsreader app on the iPad, we suggest you download this as well, because it offers a very magazine-ish reading experience. The delivery of editions is faultless. Content is downloaded so that you can read it offline. Best of all, it's free, so you pay nothing to try it out!

Specifications

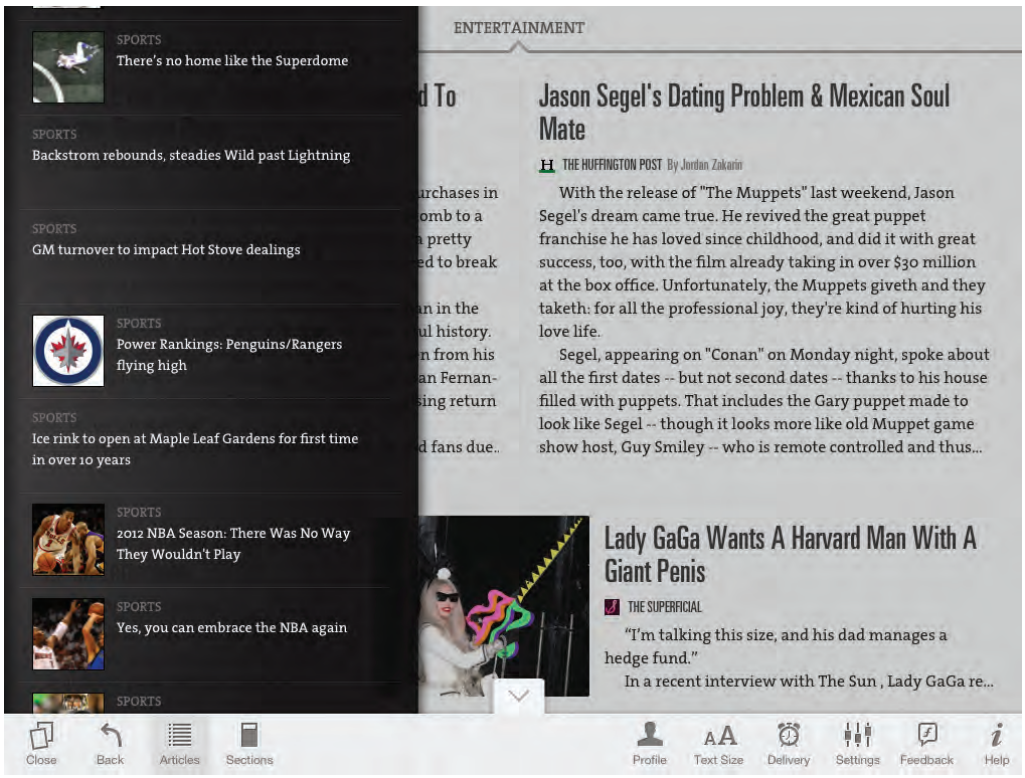
Newsreader app; multiple sources and sections; social network integration; daily delivery of edition; bookmark content; compatible with iOS 4.0

Price: Free

Download: Apple App Store

Rating: 8.0

Features	8.0
Performance	7.5
Build Quality	7.0
Value for Money	8.5



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You are Emoji!
Apple iOS 5 devices have Emoji onboard, a comprehensive emoticons keyboard with over 700 symbols **http://bit.ly/uwQJBQ**

Google Currents reads well
Google has launched its long rumoured magazine reading application called "Google Currents", for Android and iOS **http://bit.ly/sHoe5m**

Typosquatting threats and more

The latest threats doing the rounds – they hit closer to home than you may think

Beware of Typosquatting sites

Internet security firm, Sophos cautions users to be careful while typing URLs, following the results of its study into the scale of "typosquatting". Typosquatters register misspellings of popular web sites in the hope of making money out of traffic from unintentional typing mistakes by internet surfers. The study looked for registered web sites for every single one letter typo of the URL: one letter omitted (eg Aple), one letter mistyped (eg Tritter) or one letter added (Ffacebook).

The study revealed that there's a significant typosquatting ecosystem around high-profile, often-typed domain names. A huge 86 per cent of the possible one letter misspellings of the Apple homepage led to typosquatting sites.



Mistyped URL

The highest proportion of the squatting sites – 15 per cent – led to advertising sites. Cybercriminals will register misspelled sites to make advertising revenue every time someone mistypes the name of a popular site. Twelve per cent were found to be IT and hosting pages – suggesting that they've been registered with the intention of being held onto and sold at a profit, which is also known as "domain parking".

Of the 14,495 misspelled URLs looked at in the study, 738 (5.1 per cent) were categorised by Sophos as cybercrime or adult. The former should always be blocked; the latter should be blocked at least in the workplace or around children.


Losing your pen drive here would be a big mistake

Graham Cluley, Senior Technology Consultant at Sopho, said: "A good idea is to bookmark your favorite web sites rather than rely upon your fingers working correctly".

Encrypt your pen drive

Another recent study by Sophos warns users to be careful with their USB memory sticks. Sophos' Australian office conducted the experiment by purchasing a job-lot of found USB sticks from a lost property auction run by major transit authority, RailCorp in Sydney.

The study revealed that two-thirds of the 50 tested USB sticks were infected with malware, and contained information about many of the former owners of the devices, their families, friends and colleagues.

Files contained on the unprotected devices included tax documents, school and university assignments, AutoCAD drawings of work projects, photo albums of family and friends and software and web source code. Disturbingly, none of the owners had used any sort of encryption to secure their files against unauthorised snoopers.

"It seems that commuters down under are not only losing their USB sticks, and oblivious to the fact that they were carrying malware around in their pockets, but are also at risk of losing their identity and personal information through sloppy security," said Graham Cluley, Senior Technology Consultant at Sophos. "Although this study was done in Sydney, Australia, there's no reason to believe that we wouldn't see a similar story on Delhi or Bangalore Metro and Mumbai's suburban local trains. Folks need to wake up to the threats, and take appropriate preventative steps."

Sophos advises computer users to encrypt all personal and business data before storing it on USB keys so that it can't be accessed if devices are lost. In addition, by running up-to-date anti-virus, even if you have a Mac – some of the USB sticks in the study were lost by Mac users, yet still contained PC malware – you can prevent spreading malware and protect yourself when using shared USB drives.

Bot prevention gets better

Check Point Software Technologies has launched its latest security tool, the Anti-Bot Software Blade.

A bot is a malicious software that enables cybercriminals to take over computers and execute illegal activities – such as stealing data, gaining access to unauthorised network resources, initiating Denial of Service (DoS) attacks or distributing spam. Bots are remotely controlled, typically disguised and operate without the users' knowledge. Bots are also often used as tools in targeted attacks known as Advanced Persistent Threats (APT), such as Stuxnet and Operation Aurora.

Check Point's new Anti-Bot Software Blade is designed to discover bots and prevent damages by blocking communication between infected hosts and remote operators. The new solution will be integrated into every gateway to provide businesses with multi-layered bot prevention against malware threats, with high traffic performance of over 40 Gbps – ensuring all channels of business communication remain secure.

The solution features Check Point's Multi-tier ThreatSpect, a unique detection engine that analyses traffic on every gateway, identifies millions of outbreak types and discovers bots by correlating multiple risk factors.

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What is NFC
Near Field Communication, better than Bluetooth, or just another gimmick? Find out

Fujifilm X10 Launched
Fujifilm X10 has been launched in India, a 14MP super zoom compact digital camera at ₹44,999.
http://bit.ly/sRNdSy



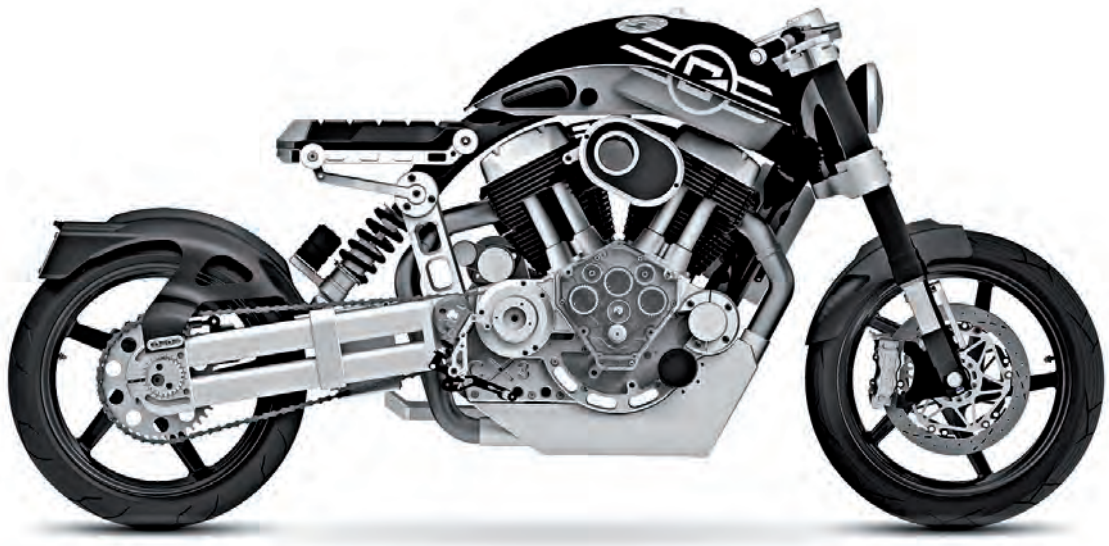
Behringer iNuke

If you're bored with your ordinary iPod dock and are looking for a replacement then the Behringer iNuke should interest you. Why you ask? Well for starters how about we tell you that it's bigger than your car in terms of size. The Behringer iNuke is 4 feet tall and 8 feet wide, it delivers 10,000 watts and is compatible with an iPad as well. Yours for only ₹15,60,000

Stuff we'd love to Listen to...

Hellcat X132

Hellcat X132 is a bad-ass mean machine, this beast is comparable to the legendary Harley Davidson in terms of performance, toughness and riding. The chassis on this bike is made from aircraft grade aluminium its only obvious that a v-twin engine powers this bike. The bike would be available by March next year and is open for pre-booking right now at a price tag of ₹23,40,000. We threw in this bike because if you thought it looks good enough, wait till your *hear* it!



HP makes webOS immortal
After several stumbles, HP finally makes the right call and releases webOS to the open-source community
http://bit.ly/tC2BDe

Silverlight 5 released
Microsoft has released what might just be the last version of their Silverlight plug-in
http://bit.ly/v6oUtM

Harman Kardon SoundSticks II

Crafted out of clear plastic the SoundSticks II offer you an uninterrupted view of what's going on inside them when you play your favourite thump. Stunningly brilliant to look at the 10.2 by 9.2 by 9.2 inches sub-woofer gives away a mild blue light when playing in their true glory. Both the satellite speakers has a 25-mm full range driver.



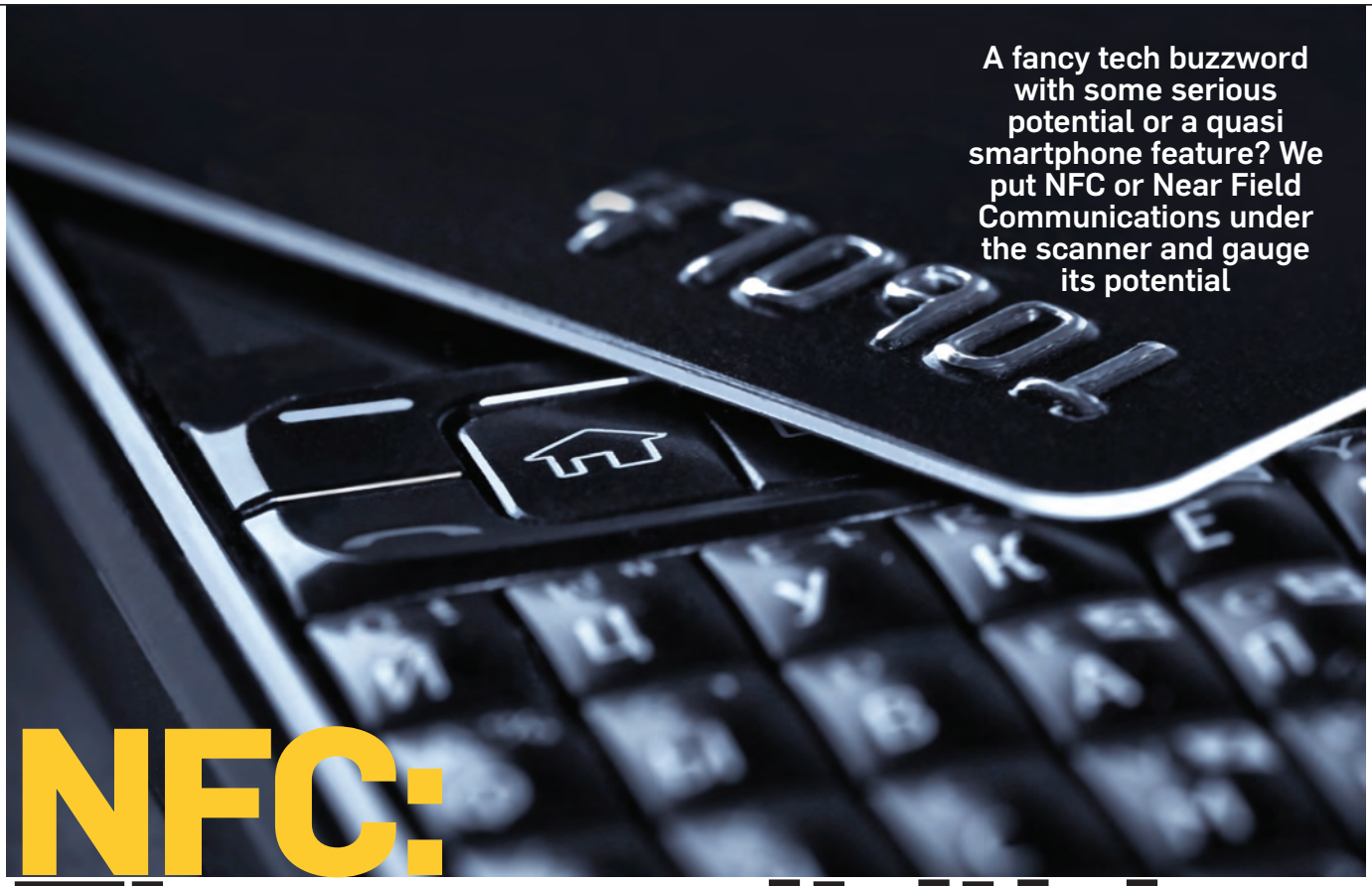
SOUL by Ludacris

Well if you happen to be a Ludacris fan the SOUL headphones would be a perfect addition to your Rap collection. This cool headphones sports a chrome finish and comes with two detachable 3.5mm audio cables. The extra headphone cable features a remote control and a microphone that allows you to answer calls. All you got to shell out to own a pair of these is a mere ₹20,220



1 TB notebook HDD
The 2.5-inch WD Scorpio Blue 1TB is now available, and ships for ₹10,650, excluding taxes **http://bit.ly/tZ3MaX**

Nokia to train Indian students
Nokia has tied up with Chennai-based Bharath University, to educate students about mobile technology **http://bit.ly/t283Kj**



A fancy tech buzzword with some serious potential or a quasi smartphone feature? We put NFC or Near Field Communications under the scanner and gauge its potential

NFC: The possibilities

Jayesh Shinde
jayesh.shinde@thinkdigit.com

Back in 2010, Google unveiled its flagship touchscreen smartphone with a twist. It had just dumped HTC after two successive years of Google-branded phones to partner with Samsung. The Nexus S was born and it had a curious feature called NFC. Though hardly a new technological breakthrough, the Nexus S helped catapult NFC back into popular imagination. Since then, quite a few smartphones have featured NFC chips, but it's scarcely more than a bonus feature, because the ecosystem to implement and deploy NFC-based tasks and services doesn't exist. In some ways, NFC-enabled phones are a bit ahead of their time. However, a range of tech analysts and commentators are betting on 2012 being the year of NFC. The biggest early trend will be of mobile payments, according to a CNN report. Services such as Google Wallet, Visa Wallet and ISIS (mentioned later in the article) will kickstart the NFC party coupled with a new wave of smartphones that will hopefully help this promising technology go from strength to strength.



A BRIEF HISTORY

NFC is essentially a subset of RFID (Radio Frequency IDentification), and is a wireless standard approved as early as 2003. NFC's acceptance into everyday life was largely due to the combined efforts of Nokia, Philips and Sony, who founded the NFC Forum back in 2004. Unsuccessful trials of NFC took place between 2007 and 2008 with little support from vendors. Soon, NFC hit a roadblock and went into limbo.

The industry is now responding favourably to NFC deployments. The NFC Forum now has over 200 members – with Google joining as a prime member last year, and being committed towards charting NFC's roadmap. Japan and a few European countries have deployed NFC in a few scenarios, while the rest of the world, including India and the US, are still researching business models. So we have phones with this capability, but nowhere to use them just yet. However, much like we tried to do with our PCs for years, we are now future-proofing our phones!

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Micromax A85 Superfone drops price

Launched at ₹18,990, the Superfone A85 will now retail for ₹3,700 less, at ₹15,290
http://bit.ly/uTiY2d

3G roaming barred

TRAI has asked operators to discontinue the roaming agreements, and threatened to impose hefty penalties **http://bit.ly/ul2tyS**



ISIS' infograph detailing a one-stop NFC-enabled smartphone for ultimate convenience

HOW DOES IT WORK?

NFC isn't exactly rocket science, and we'll stay away from technical details apart from mentioning that NFC is a short-range point-to-point communication standard. In the simplest scenario, you hold an NFC-enabled smartphone next to another NFC-enabled phone or an NFC-enabled payment gateway. If the proximity is close enough, a pop-up registers on both phone's screens (or one, depending on the scenario). You press a key or touch the screen to transfer data to or from the device. Yes, it's that simple.

We experienced the potential of NFC during the launch of Nokia Symbian Belle devices, Nokia 600, 700 and 701. There were NFC-enabled smart posters which allowed you to download movie photos and videos on the Nokia phones if you took them close enough to the posters. Watch the entire video here: http://bit.ly/nfc098

APPLICATION SCENARIO

Two prime reasons why NFC is even considered as an independent standard: ease of use and the inherent security it offers. Other existing wireless standards like Wi-Fi 802.11 and Bluetooth are wide-ranged and cumbersome to access, compared to the pure convenience of NFC-enabled devices. There can always be passwords for added protection, but unless the two devices being paired are "in sync" at their respective hardware level, they'll never touch base and establish communication between each other.

Three key focus areas that will drive the mass adoption of NFC in mobile and consumer electronic devices are retail, transport and accessories. Let's explore them in a bit more detail.

1. **Retail:** With services like Google Wallet and VISA Wallet, the need to carry a physical credit or debit card in your wallet is kind of negated. Here's how Google Wallet works: you key in your credit card or debit card details in Google Wallet, a cloud service. Then, you download its app on your NFC-enabled smartphone and check for merchants that accept payments through Google Wallet. When you physically checkout of the store, all you do is wave your smartphone near an NFC-enabled cash register and your transaction is reflected on the screen. And that's pretty much it. A task that takes only a couple of seconds.
2. **Transport:** ISIS, the near field communication mobile wallet venture from Verizon, AT&T and T-Mobile has a very good infographic visually explaining the use of NFC at various stages of a commuter's journey stages. At the airport, you can check in by merely waving your smartphone at the security gate's authentication point, similarly verify and confirm your flight and seat at the final terminal checkpoint. Car rentals can be booked online to get an NFC ticket, which can be used to unlock a pay-per-use car outside the airport. The same phone can finally be used to check into a hotel and even unlock your reserved room! Same principle can be applied to get into a hospital and get healthcare. The possibilities are truly endless, so are the massive benefits.
3. **Accessories:** As far as personal experiences go, apart from transport and retail applications, NFC-enabled smartphones can pair with supported NFC-enabled headphones, for example, with a simple tap. You can also transfer photos, videos between two NFC-enabled devices by simply bringing them close enough to initiate the data transfer request.

During all these NFC "handshakes" between different devices, security and data encryption layers are present to preserve the integrity and safeguard your private data. Let's see, we have our fingers crossed and can only hope NFC generates interest and flies high with consumers.

AVAILABLE NFC-ENABLED SMARTPHONES

- **Samsung:** Galaxy SII, Nexus S, Galaxy Note, Galaxy Nexus and Wave 578
- **HTC:** Amaze 4G
- **Nokia:** C7, 603, 700, 701 and N9
- **BlackBerry:** Bold 9790, 9900 and 9930; Torch 9810 and 9860; Curve 9350, 9360 and 9370



Virtual wallet services heavily rely on NFC

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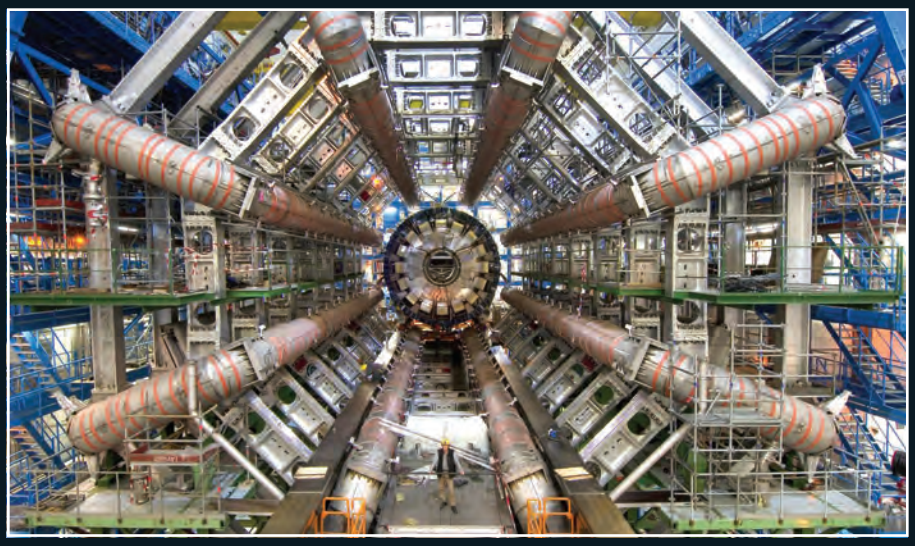
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Higgs and Seek

Jait Dixit
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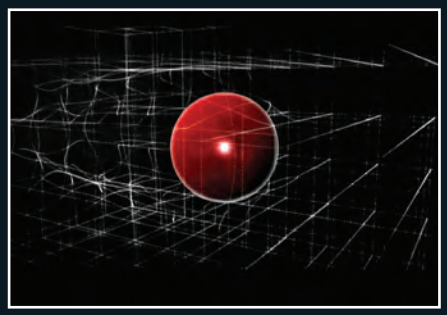
ATLAS is one of the six particle detectors setup at LHC that can find the Higgs Boson

Higgs Boson is a hypothetical fundamental particle theorized by Peter Higgs (that's how it got its name). What has made the entire physics community and the press go ga-ga over this particle is the fact that, if it were to exist, it would provide the mechanism which explains why everything has a mass - the sun, the tau neutrino and even you. It is considered to be a key particle for the Standard Model of Particle Physics.

In the strictest scientific terms, Higgs Bosons act as mediators for the Higgs Field. A Higgs field is something like an electromagnetic field. We're completely surrounded by Electromagnetic fields - radio signals, cell phones, satellite signals, radar all the time. It's an ocean of photons (a quantum of electromagnetic force) that completely blankets us. A Higgs field behaves in exactly the same way, it engulfs all the particles in an unseen ocean-like ether — permeating the entire universe. And Higgs bosons are the particles that constitute this field, just like H_2O molecules in water.

It's the interaction of particles with the Higgs field that causes drag and is manifested as mass. As a simple analogy consider a room filled with people, when a celebrity steps through the door to get to the other side of the room, people will cluster around her and make it difficult for her to move increasing the 'drag' and thus imparting more mass. When a relatively unimportant person like a member of the Digit editorial team steps into the room to get to the other side, his progress will be nearly uninhibited (nobody usually gives a hoot about what we do) and thus less mass. Hence its the interaction of the elementary particles with the Higgs bosons that imparts mass to the particle.

Without mass, the universe would be a very different place. For example, if the electron had no mass, there would be no atoms and in a logical progression no sun, no earth and no people. It's the reason why elementary particles have mass and thus stars, planets and life exists.This is the reason why Higgs which imparts mass is called the 'God' particle. Though the physicists actually hate when people refer to Higgs boson as the 'God' particle. They consider it to be a hyperbole, all their efforts are directed to plugging in the holes in the standard particle model and thus understanding how the universe came into existence.



A Top quark interacting with Higgs field

Scientists have setup the world's costliest experiment read LHC (Large Hadron Collider) at CERN in Switzerland, just to get a glimpse of this bashful particle. The LHC works by smashing together two beams of hadrons (in essence protons) travelling close to light speed. This generates a shower of particles that are only created at high energies. The Higgs will probably never be observed directly, but scientists at the LHC hope that a Higgs will momentarily exist in this soup of particles. If it behaves as researchers think it will, it should decay further into yet more particles, leaving a trail that could prove its existence. Experiments carried out from 1989-2011 have ruled out the existence of Higgs outside the 116-130 GeV.

In December 2011 before closing for Christmas, LHCs two main experiments (ATLAS and CMS) both reported independently that their data hints at a possibility the Higgs may exist with a mass around 125 GeV/c2. But they need more data to conclusively prove Higgs existence. A definitive statement on the existence or non-existence of the Higgs will require more data, and is not likely until later in 2012.

It seems we've painted a very rosy picture, but finding the Higgs boson is not guaranteed. All this discussion is based on a hypothesis. Finding the Higgs boson will open gates for many more important discoveries in physics like super-particles and dark matter, increasing our understanding of the universe. On the other hand, finding no Higgs boson will surely be a disappointment (not even considering the financial loss), but at the same time pave way for a new breed of theories that try and explain the Higgs mechanism.

worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

(MUST READS)

THE BEST AND WORST OF GAMES



As always, any game listing tends to be a little biased especially when it deals with the best and the worst titles of the year gone by. Editors at Ars Technica have put together a list of such titles of the most disappointing games that looked promising but failed.

bit.ly/tpweQG

BIGGEST NEWS STORIES OF 2011



The past year saw some of the most trend setting launches, take overs and news stories in the making. It was a year full of events and untimely deaths if we may add. Here's the whole year condensed into one crisp read. Enjoy!

rww.to/uFljOo

DEFINITIVE GUIDE TO HTML5

It seems that in 2012 battle lines would be drawn around the HTML5 platform. Ben Savage, founder of spaceport.io has put together fourteen predictions for HTML5 in the new year. One of it is that HTML5 would be adding support for some really cool APIs

tcrn.ch/ssgCfD

TOP 100 THINGS

Devices, apps, ideas this past year we came across. A combination of good and bad of everything tech. The guys at CNET have put together a comprehensive list of some of the most talked about and thrashed devices that mattered the most and changed the rules of the industry.

cnet.co/w1HA41

[MAXIMUMPC Corner]

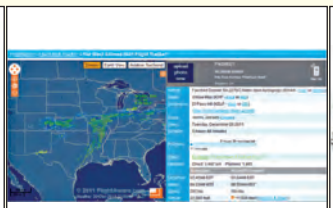
TECH PREVIEW 2012: THE PC'S BRIGHT FUTURE



Start plotting for your next gen ultimate machine, whoever says that the PC is dead is in for a surprise ride. With faster technologies coming of age this new year your PC is set to become the fastest it ever was. Nothing still beats the sheer performance of a PC bit.ly/rUAYNO



Ultimate Windows home server
If you happen to have a Windows heavy home environment this should interest you. Windows server OS is great for streaming and effortless backups, this DIY shows you how to build one for your home.
bit.ly/rEPnuj



The geek traveller
Some might come to terms with the fact that vacationing is stressful, as absurd as it may sound but holidays do tend to get out of hand if not properly planned. Here are a few useful resources and tips to make your trips better when travelling with your gadgets and gear.
bit.ly/vjZZNo



Depreciation of music
It would take 10 hours each day spread over 500 days to finish 6000 hours of music, we doubt if anyone listens to music that way. The way we consume our music has come a long way from vinyl discs to mobile phones here's a look at music depreciation.
bit.ly/v2VpOW

SHORTS

MUSIC FOR YOUR EARS

Buying a hi-fi set of speakers can burn a hole in your pocket, these are not only expensive but extremely bulky at times. A good pair of earphones wouldn't leave you short on cash but are also the style statement when it comes to the cool factor. Here's an in-depth write up:
nyti.ms/tw0TS8

ANDROID 4.0 REVIEWED

The new update for the Android system seems to be promising for its devices, especially the uniform experience that it would offer across phones and tablets. Apart from this a totally redesigned user interface would offer something new and fresh to the Android customer. Here's a first look at the new OS:
bit.ly/vze6Wc

CELLPHONE BATTLES

What happens when IP addresses belonging to a particular brand post comments in favour of its product? That's what happened with the Lumia 800 review where both Microsoft and Nokia posted favourable comments on a shallow write up that was merely based on the phone specifications.
bit.ly/rA4fzG

THINGS THAT GO BEHIND GAMES

Game making is an uphill task with mammoth amounts of art development, hours of sound recording and story writing and narration that is at par with top Hollywood flicks. Here's a look under the hood of the best game engine and what powers them.
bit.ly/sB2b5t

x86 CPUs in 2012: What's ahead for Intel and AMD

- By Joel Hruska

PCMAG DIGITAL NETWORK

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2012 is a major year for both Intel and AMD. For Chipzilla, it's showtime for Atom and a suite of new high-end mobile products. AMD will also try to capitalize on the mobile momentum it built through 2011 while simultaneously re-positioning itself and dealing with product delays.

Intel: Smartphones and ultrabooks

Intel will spend 2012 primarily focused on two, relatively new mobile computing sectors: smartphones and ultrabooks. 2012 will likely be the year Atom finally picks up design wins and starts shipping in handsets. Even if it doesn't do much volume, this is Intel's foot-in-the-door year; the company's stated goal is to launch a design that's competitive with ARM products, both in terms of performance and power consumption. If it can manage that, other concerns, like application compatibility, will come into line as the year progresses.

The other major focus of the year is ultrabooks. Intel has set an ambitious sales target of 40% by the end of the year and is investing in both component research and marketing funds for the new systems. Despite these factors, the company's overall risk is low. If ultrabooks take off, Intel wins credit for driving innovation and helping to launch a new form factor.

If ultrabooks don't gain traction in the mass market, Intel still has a suite of new low-power Ivy Bridge chips plus its investments in thinner form factors and lighter parts. All of these elements are useful in the long term, even if they aren't deployed simultaneously in the company's current vision of an ultrabook. OEMs could, for example, combine low-TDP and thinner components with a larger battery. Meanwhile, customers are still going to be buying plenty of Intel-powered desktops and laptops.

As for tablets, x86-powered Android flavors will exist, but it won't be a particularly large market segment. This has less to do with Atom's ability to scale into a tablet and is more the result of other market factors. The only signs of life in that market are at the lower end, where the Kindle Fire and Nook Tablet are doing fairly well. Neither product is a good fit for Intel at this point, if only because they target rock-bottom price points that Santa Clara probably doesn't want to match.

In servers, desktops, and traditional laptops, 2012 will be the year of performance-per-watt. While Ivy Bridge's integrated GPU is said to be much faster than Sandy Bridge's, the CPU is only modestly faster. The big talking points across Intel's product lines will be delivering improved efficiency. This will pass muster with virtually everyone because the shift towards laptops and other mobile devices means total battery life is now part of virtually any performance metric.

The relatively small handful of buyers concerned with speed above all other factors won't find a lot to crow about in 2012. Ivy Bridge's overclocking headroom probably won't be much better than SB's (at least, not on air cooling). Multi-threaded performance

TOP TECH TRENDS OF 2011



Everyone has his own opinion when it comes to compiling tech trends but the line of thought essentially remains more or less the same. Things that created a buzz in the industry to things that fell flat on their face, here's an informative info-graph summing it up: bit.ly/t2zLI1

FUEL CELLED APPLE PRODUCTS

Recent patent applications filed by Apple indicate that fuel celled products might be in the making. It's always hit idea with consumers when it comes to saving the energy and Apple seems to be moving ahead of its competitors again. Soon we might have iMacs powered by fuel cells: bit.ly/sb4RGI

MOST INNOVATIVE COUNTRIES



Here's an info-graph showcasing the most innovative countries and industries on the planet. US and Japan are obviously there, but China is absent! bit.ly/sreSQy

ANATOMY OF A SKYSCRAPER

Modern architecture has blessed us with many things, whether it's the sheer size or magnanimity of a structure or its purpose, modern day skyscrapers are the landmarks of the present day world. One such tall tower is scraping its way up the skies of Europe and once completed it will be the tallest tower in the continent. Here's more on the story: bit.ly/vXpPxu

should fare a bit better; Intel will launch LGA2011-compatible eight-core processors under the Xeon E5 family sometime next year.

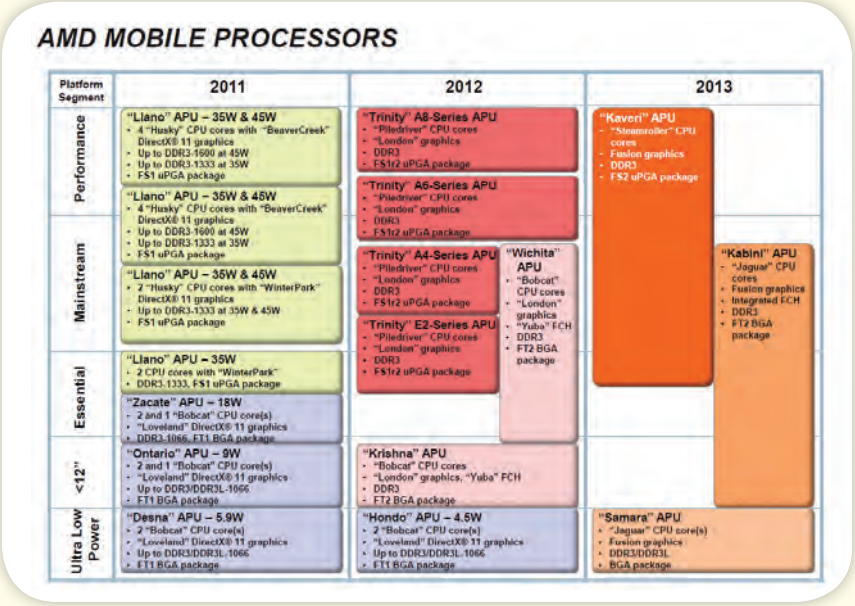
AMD: Mostly mobile, talking tablets

The cloud of uncertainty surrounding AMD and the recent foundry debacle makes it harder to predict what the company will do in 2012. AMD won't unveil its strategy for the year until February, where its CEO, Rory Read, will undoubtedly leverage his expertise in sales to put on a good show. Tablets will likely be a prominent feature, though the 28nm delay means that any parts AMD ships in this segment for 2012 will likely be demo units as opposed to commercially viable products.

The reality underneath the hype is probably fairly grim. AMD will launch Trinity early in Q1, possibly as early as CES. That chip pairs a second-generation Bulldozer core (Piledriver) with a GPU based on the HD 6000 series. Early performance suggests the GPU could be 20-25 percent faster than Llano's. The interconnect between the two components has also reportedly been improved.

On the CPU side of the equation, however, Piledriver will likely struggle to match Llano's performance and power consumption. AMD leaned heavily on Llano's GPU performance and media capabilities when it came to marketing the chip, and it'll likely do the same with Trinity. Tweaked Brazos products, still on 40nm, will round out most of 2012.

Read will almost certainly announce a new 28nm family of Brazos chips built at TSMC, probably with a late-2012 launch date. One of his major tasks, come February, is to sell investors and OEMs on the idea that AMD can still compete with comparatively low CPU performance on the one hand and a slow move to 28nm on the other. With Intel focusing on smartphones and relatively high-end laptops, AMD should be able to maintain a grip on the mobile market and keep itself in the black.



Graphics presents an interesting situation. The good news is that AMD's next-generation, 28nm Radeon 7000 series — which launched today — will beat Nvidia's 28nm "Kepler" GPU to market by several months. Current rumors suggest that Kepler's high-end version could slip to the latter half of 2012, giving AMD a huge lead to market.

The bad news is that AMD's earnings from graphics sales are pretty terrible. Sunnyvale paid $5.6 billion to acquire ATI in 2006, then wrote off half that amount (essentially admitting that it paid $2.4B more than it should've for the Canadian company). The chart above lists AMD's recognized graphics revenue and operating profit/loss for each fiscal year. Note that neither APU sales nor the R&D associated with the development of Brazos, Llano, and Trinity are included.

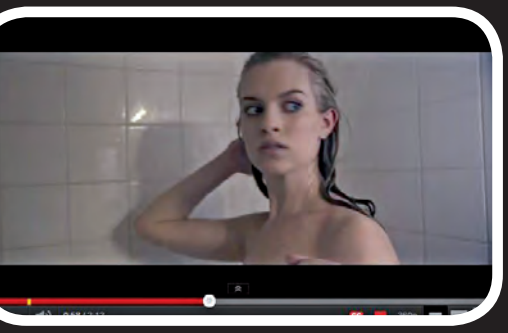
In the five years since it acquired ATI, AMD has made a grand total of $190 million dollars on $6.3 billion in sales, for a net profit margin of 3%. This chart doesn't capture the full value of that purchase; the ATI acquisition enabled the development of AMD's current APU and contributed to the success of earlier integrated chipsets. Nevertheless, the data suggests that AMD's ability to leverage graphics earnings to keep the company in the black is extremely limited.

Watch for Sunnyvale to emphasize its longer-term commitments to tablets and the cloud while shipping low-end desktops and laptops. Graphics will be a major focus in all areas; the HD 7000 series could grab market share from Nvidia if it delivers significant performance improvements. Intel's bifurcated strategy on ultrabooks at one end and smartphones on the other creates an area of the market where AMD can effectively market its own products, and Read will try to take full advantage of it.

[Image credit: Sonic840]

SIRI: THE HOLIDAY HORROR MOVIE

We've been obsessing over Siri ever since its arrival on the iPhone4S. So much so that people have made videos of



themselves doing all kinds of crazy things with Siri like singing a marriage proposal, picking a fight with her and so on. Here's a trailer from a fake horror film where Siri seems to be the cause of unexplained murders. Watch the trailer to get the full story.

bit.ly/saisxp

(QR Code)

For a list of all the links from this section head over to http://minmu.net/WVJan12/ or scan the QR code above with your mobile device.

(PRODUCT LAUNCHES)

PSP VITA (JAPANESE EDITION)



The much awaited PSP Vita has made its entry on the Japanese shore. In what looks to be a promising hand-held the Vita sports a quad core ARM Cortex A9 with 512MB of memory with 128MB of VRAM. Screen is 5 inches in dimension with an OLED display.

Approx price ₹20,000

ORBOTIX SPHERO



You might remember this robotic ball from CES earlier this year. Sphero has finally made its appearance on the block and looks like a fun thing to do. Sphero comes with a power charger and has around 5 apps to navigate it on both iOS and Android.

Approx price ₹6700

MOTOROLA XYBOARD 8.2



Xyboard is the Xoom 2 elsewhere apart from US, an 8.2 inch variant of the Xoom tablet features battery life of about 5.25 hours. A 5 megapixel camera capable of 720P recording sits in the back while its front has 1.3 megapixel one. It's got an IPS display.

Approx price ₹22,360 (starting)

WORDJUMBLE

ABSOLUTE TIMEPASS

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There are twenty one words hidden in this jumble find them all

Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these playing on your screen

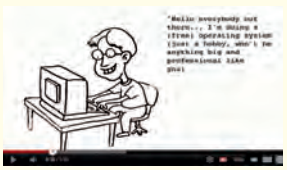


Polite bear

0:07 secs

This is one of those lucky moments caught on tape which you wouldn't see occurring normally. This has to be the most polite bear you'd ever see.

bit.ly/vn3exX



Story of Linux

3:39 secs

History of Linux scooped up for you in under four minutes. From its inception till present time where its changing the world. A must watch

bit.ly/sLCUj4



Oktapodi

2:26 secs

This Oscar nominated shor, Oktapodi, tells the story of two octopuses fight for survival against a butcher and the world.

bit.ly/rX2k3B

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DIY: Hovercraft

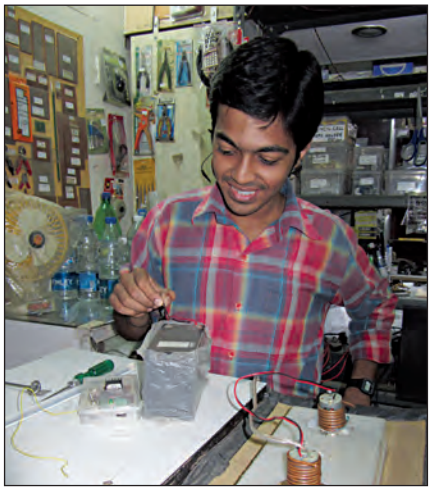
On the brink of flight!

A DIY that will get you started on the first steps to creating your own flying machine

Alok Deherkar,
Anirudh Regidi
readersletters@thinkdigit.com

Presenting Alok Deherkar, this intrepid young man spends almost all his time mucking about in his own little DIY accessories shop. Since the time he started his shop, Alok has designed innumerable gadgets and devices for everything from college projects to car and bike accessories. In his own words, "I'm a DIY for life". His ultimate goal is to create his own personal, home-made helicopter before he dies!

He designed his first hovercraft in August and has spent a lot of time in refining the design to its current state. We present you with the basic hovercraft design that he started off with. Remember, there are no hard and fast rules for designing this and you can spend a lot of time modifying and tweaking the design to your heart's content.



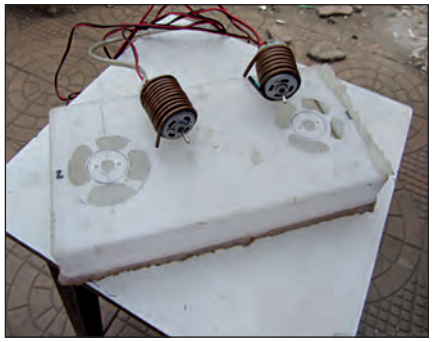
The protagonist: Alok Deherkar
alok.deherkar@yahoo.com
http://bit.ly/t7TYde

STUFF YOU'LL NEED

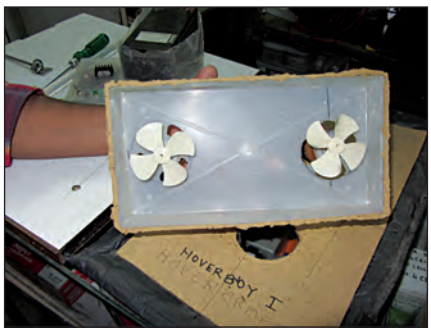
Cardboard; Garbage bag; Plastic box of some sort; At least two, high rpm motors; Power source (Battery pack whose voltage depends on the motors); At least two propellers; A precise ruler; Marker pen; Glue gun or glue of some sort; Long wires; A sharp blade, scissors, nails, etc.; Drill with fine bits (for motor and screw mounts).

The motor housing

For the hovercraft, you can use any number of motors you choose. Alok used 2 for his design and they were more than sufficient. The motors he used are 11.1V, 18,000rpm motors (zero load) which he managed to salvage from a couple of blow-driers. The mounting point for the motors is an old plastic box.



Getting started

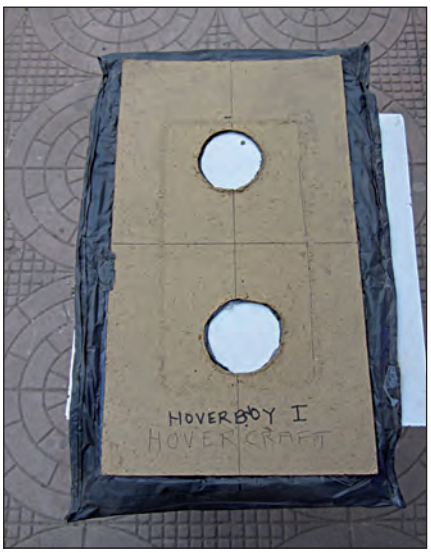


Attaching the motors

On the bottom of the box, you need to carefully draw a line dividing the box exactly in half, lengthwise. Decide where you want to mount the motors and make sure that they are aligned and along the line you marked. It would be best if you balance the motors on the box itself by keeping them equidistant from the edges as this will save you a lot of hassle later when mounting the skirt.

For each motor you plan to use, cut a hole for the shaft along the central line marked earlier. Drill some screw holes to mount the motors and some vents for airflow, as shown in the images. Don't make the vents too large or else the structure will become weak and won't be able to support the weight and torque of the motors.

The copper coloured stuff you see wrapped around the motors, is, well, Copper. This tubing was added to the motor to aid in cooling as it gets hot after extended use and is strictly optional.



Cutting the cardboard

Attach the motors to the box by screwing them into place. Next, attach the propellers to the motor. If the shaft diameter is too large for the propellers,

A brief history of flight

A very informative link giving a quick summary of man's attempt at flight through the ages.
http://bit.ly/flthistory



Perforating the skirt

you will need to enlarge their diameter using a precision drill and fine drill-bit.

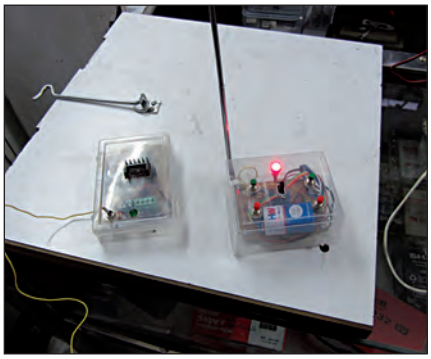
IMPORTANT NOTES:

Weight management is essential and its importance cannot be stressed enough. An unbalanced hovercraft is of no use and will not function as expected.
DO NOT handle power tools such as drills if you do not have experience in handling such equipment. Take all necessary safety precautions before you begin the project.

Making the skirt

The next item on the list is the skirt. The purpose of the skirt is to evenly distribute the airflow under the hovercraft and create a cushion of air for it to ride on. The motor housing needs to be attached to the skirt and fill it with air. For this, take a sheet of stiff cardboard and carefully mark the outline of the box on the exact centre of the sheet. Cut-out vent-holes directly under the propellers of the motors.

Seal both ends of the garbage bag with a glue gun, place it on a flat surface and put the cardboard sheet on it.


Optional extras such as a wireless remote

CRAZY CONTRAPTIONS!

Do you spend your time cranking out the weirdest possible contraptions from that twisted pulp you call your brain? Send us your ideas, designs and contraptions and you might just get yourself featured in this section! Send a mail to readersletters@thinkdigit.com with the subject line "Crazy Contraptions!"

Precisely centre the sheet on the bag and glue the two together. Cut holes in the bag in a pattern similar to the one shown in the image. You can experiment with the pattern here and try to find one that is optimal for your design, just make sure that the pattern is balanced.

Finishing touches

Once this is done, align the motor housing with the holes in the cardboard sheet, once again, ensure that everything is balanced precisely, then glue the two together. All that is left now is for you to attach the motors to a battery pack and you are good to go! The hovercraft in its current state can only


The base model

hover. You can add some rear facing motors, Li-ion battery packs and even a remote control if you so desire.

Now for some fun! We inadvertently discovered the dust-blowing properties of the hovercraft while testing it out on a side-walk and spent the better part of an hour trying to create a dust cloud of epic proportions! Keep an eye on our YouTube page at http://www.youtube.com/user/digit, where we will be uploading the video soon.

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PHYSX: ADDING MORE REALISM TO GAMING

Last month we showed you how Graphics Cards work in conjunction with the other components on the motherboard, and also how the graphics pipeline works. But there are still more technicalities which you will need to know about as far as graphics cards are concerned. If you have been a gamer for a long time, you may have noticed how realistic the games of today are than their counterparts some years ago. In this issue, we get into the technology in NVIDIA cards that enhances your gaming beyond mere GPU acceleration.

WHAT EXACTLY IS PHYSX?

You will come across this term in most modern games and almost all of NVIDIA graphics cards' packaging - NVIDIA PhysX Ready. It is a powerful physics engine enabling real-time physics in leading edge PC games. PhysX software is widely adopted by over 150 games and is used by more than 10,000 developers. PhysX is optimized for hardware acceleration by massively parallel processors. GeForce GPUs with PhysX provide an exponential increase in physics processing power taking gaming physics to the next level.

TO ADD REALISM TO GAMES, YOU HAVE TO MAKE SURE THAT THE OBJECTS IN THE GAME MIMIC REALITY

To add realism to games, you have to make sure that the objects in the game mimic reality. For instance, if you are wearing a long overcoat and standing on a windy road, your coat edges are bound to sway with the wind. If you jump into a swimming pool, water is bound to splash out and not just remain steady.

Physics is the next big thing in gaming. It's all about how objects in your game move, interact, and react to the environment around them. Without physics in many

of today's games, objects just don't seem to act the way you'd want or expect them to in real life. Currently, most of the action is limited to pre-scripted or 'canned' animations triggered by in-game events like a gunshot striking a wall. Even the most powerful weapons can leave little more than a smudge on the thinnest of walls; and every opponent you take out, falls in the same pre-determined fashion. Players are left with a game that looks fine, but is missing the sense of realism necessary to make the experience truly immersive.

With NVIDIA PhysX technology, walls can be torn down, glass can be shattered, trees bend in the wind, and water flows with body and force. NVIDIA GeForce GPUs with PhysX deliver the computing horsepower necessary to enable true, advanced physics in the next generation of game titles making canned animation effects a thing of the past.

PHYSICS PROCESSING IS BEST UTILISED BY A GPU

The multithreaded PhysX engine was designed specifically for hardware acceleration in massively parallel environments. GPUs are the natural place to compute physics calculations because, like graphics, physics processing is driven by thousands of parallel computations. Today, NVIDIA's GPUs, have as many as 512 cores (GTX 580) or 1024 cores (GTX 590), so they are well-suited to take advantage of PhysX software.

CARDS SUPPORTING PHYSX

The minimum requirement to support GPU-accelerated PhysX is a GeForce 8-series or later GPU with a minimum of 32 cores and a minimum of 256MB dedicated graphics memory. However, each PhysX application has its own GPU and memory recommendations. In general, 512MB of graphics memory is recommended unless you have a GPU that is dedicated to PhysX.

PHYSX ON MULTI-GPU SETUPS

When two, three, or four matched GPUs are working in SLI, PhysX runs on one GPU, while graphics rendering runs on all GPUs. The NVIDIA drivers optimize the available resources across all GPUs to balance PhysX computation and graphics rendering. Therefore users can expect much higher frame rates and a better overall experience with SLI.

A new configuration that's now possible with PhysX is two non-matched (heterogeneous) GPUs. In this configuration, one GPU renders graphics (typically the more powerful GPU) while the second GPU is completely dedicated to PhysX. By offloading PhysX to a dedicated GPU, users will experience smoother gaming.

Finally we can put the above two configurations all into one PC! This would be SLI plus a dedicated PhysX GPU. Similarly to the 2 heterogeneous GPU case, graphics rendering takes place in the GPUs now connected in SLI while the non-matched GPU is dedicated to PhysX computation.

PhysX technology is supported by gaming engines such as Unreal Engine 3, Gamebryo, Vision, Instinct, Trinigy, Diesel, among others and some of the popular game publishers who have licensed PhysX for their global studios include EA, THQ, 2K Games, Sega, among others.





http://goo.gl/5gXGW: Do check out the NVIDIA GeForce GTX PhysX PC Trailer video to get a visual feel of how PhysX enriches the realism in a game with objects interacting with their surroudings. For instance from timestamp 0.34 onwards the screen splits into two showing you the gameplay in non-PhysX mode and PhysX mode.

GAME TITLE	PHYSX EFFECTS
Alice: Madness Returns	Debris and particle simulation, destructible enviornments, fluid simulation
7554	Rigid body simulation, vehicle simulation, destructible enviornments, cloth simulation
Batman: Arkham City	dynamic fog and steam, dynamic bank notes, posters etc., additional rigid bodies, destructible environments, cloth simulation, debris and particle effects
Batman: Arkham Asylum	dynamic fog and steam, dynamic tearable cloth and cobwebs, spark effects, dynamic paper and leaves, additional rigid bodies, destructible environments
Mafia II	additional debris (up to 10,000 pieces at a time), dynamic cloth, dynamic smoke
Metro 2033	debris simulation, dynamic smoke



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Green monitors
NEC has come out with displays that tell you their carbon footprint when you bring up the OSD

RIM sued by BBM Canada
BBM Canada, a Toronto-based broadcast industry group has filed a lawsuit against RIM for trademark infringement around BBM

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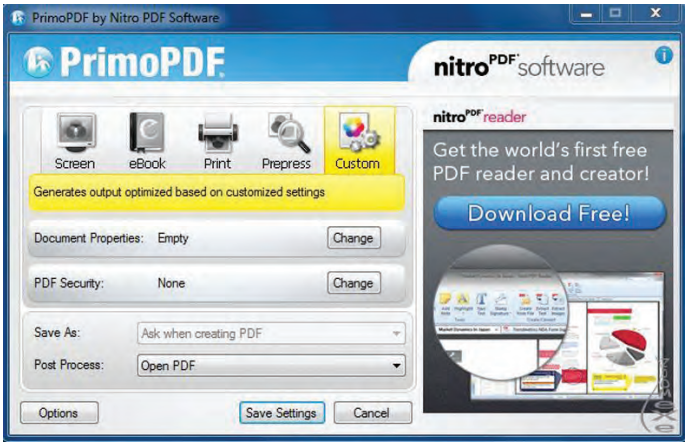


HTML to PDF Conversion

I have a collection of web pages stored on my computer(html and their folder) which i wish to convert in a single pdf file, kind of a book, but i am unable to do so.
Kindly help.

Xan

You can convert the HTML pages into PDFs using a free utility – PrimoPDF which you can find in this month's DVD. Once the PDF conversion is done, your next task to combine all those pages into a single PDF.



To convert pages to PDF, you need to select Print command and choose the PrimoPDF as the printer and click OK. In the PrimoPDF window click on Options>Save As. Highlight the file to which you want to add pages and click OK. Under 'If PDF exists', choose Append to Existing and click OK. The you select Create PDF which will form a single PDF file.

Low on graphics horsepower

Please give a solution to the following:
COD 4 Error Report
- Initializing Renderer
- Client Initialization Complete
- Attempting 44 kHz 16 bit [Windows default] sound
- R_Init
- Getting Direct3D 9 interface...
- Pixel shader version is 2.0
- Vertex shader version is 0.0
- Video card or driver doesn't accelerate transform and lighting.
- Video card or driver doesn't support UBYTE4N vertex data.
- Error during initialization:
- Video card or driver doesn't support UBYTE4N vertex data.

if graphics card is the solution.
Recommend it, within a budget of 5k INR.

Ajmi Shukoor

You are running this game on the integrated graphics which is not providing enough horsepower to run the game. You will most likely need to add in a discrete graphics card to run the game. Some cards within your budget include MSI R6670, Sapphire HD 6670 which are around ₹5000

Nokia N8 hanging issues

I had got a Nokia N8 for myself when it was launched.After 1 or 2 months it started to 'hang', while multi-tasking(i didn't mind that cuz it used to get ok). But,after few months this became a major problem as it got 'hanged for 2 days'(i also tried rebooting it again and again,but didn't work).Then i went to NOKIA SOLUTION PARTNER,where they had 'formatted' all the things except PHOTOS and CONTACTS.Then for god sake it was working but they said that not to download any app./content from the net,as this was a problem because a virus had entered from the net and that too because i had downloaded an Anti-Virus'.Now i'm not downloading anything,but then what is the use of this phone if i cant even use/download from the net.Please can you suggest me a solution so that i can download things(say supposing from the ovi store).

Astitva Nigam

The N8 did have problems with the Symbian^3 OS it came preloaded with. However, since you are facing slowdown issues, we suggest you do the following-

1. Take a backup of the very essential stuff- contacts primarily, and if very necessary messages. Nothing else.
2. Use the Ovi Suite to search for a Symbian Anna update for your phone.
3. Allow the update to download and install.
4. Now transfer contacts and messages back to the phone.

What you will notice is that the phone will be considerably faster and will rarely hang. As for the Nokia dealer's judgement about the virus, it could be correct. We suggest you do not download apps from sources other than the Ovi Store.

MicroSIM cutter

I have pre booked Nokia Lumia 800 and eagerly awaiting the same. Since it's compatible with Micro SIM, I will get my SIM converted to that. Is there any adapter by which Micro SIM could be made compatible with normal SIM slot. Can you please let me know where should I look out for the adapter? I do stay in Jogeshwari however I can go to Lamington Road if its available there in particular store.

Niranjan Wagh

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Cellphones to carry SAR

Indian government has made it mandatory for all new cellphones to carry SAR rating and it has been lowered from 2W/kg to 1.6W/kg

IIIT to come up in Sonepat

Indian Institute of Information Technology (IIIT) will set up its new branch at Sonepat on the outskirts of New Delhi

We hope you enjoy the new phone. For the micro SIM, yes there are adapters available. You can order one online here - http://goo.gl/h7Zjt
The micro SIM cutter comes bundled with 2 micro SIM to SIM card adapters. So, you can use your micro SIM as a normal SIM



or chop a normal SIM to the size of a micro SIM. Be very careful while cutting the SIM as you can very easily break the card.

Ubuntu GRUB error

Recently I removed a Ubuntu partition which caused a grub error every time I boot the PC. I have tried using the bootrec tool with the `/fixboot` and `/fixmbr` options, they seemed to work then, but the problem persisted. I also tried using the `/rebuild-bcd` option but received an error - "The requested system device could not be found"

Finally I tried creating a fresh boot configuration file using the bcdedit tool but to no avail.
The process I went by was:

After making C: (the Windows partition) the ACTIVE partition,

1) `bcdedit /creates-tore c:\boot\bcd`
2) `bcdedit /store c:\boot\bcd /create {bootmgr} /d "Windows_Boot_Manager"`
3) `bcdedit /set {bootmgr} device partition=C:`

This is where I receive an error - "The requested system device could not be found." So I explicitly mentioned the bcd I created using /store in the above command. Next, I added a Windows OS bootloader to it and received the same error once again unless I specified the /store. Then I set the root, system path and OSdevice partition and device partition, specifying the "`/store c:\boot\bcd`" on each step. Finally, I couldn't boot still. Please enlighten me ASAP. I used a bootable USB drives for this process.

Thanks,

Siddharth

The first thing that you must do is to make sure is that the MBR and bootsector contain the right references, to the Windows bootloader. Run the following commands:

```
bootrec.exe /fixmbr
bootsect.exe /nt60 all /force
```

Now before re-writing the BCD, remove the old BCD registry. One thing to note here, your prompt will most probably be saying X:\sources at this time (in case you are using a Windows 7 Recovery Disk/Partition). Hence, use the absolute path when dealing with files and folders, or first move to the partition which you want to recover i.e., if the Windows resides in C drive switch over to that drive before proceeding. Make sure to replace C: with whatever the correct drive is for your Windows Vista/7 installation. Once again don't forget to change the current partition to the one you want to repair.

```
attrib -s -h -r C:\boot\bcd
del C:\boot\bcd
```

Start off by creating a new BCD store, use the bcdedit program residing in your hard drive.

```
bcdedit.exe
/createstore C:\boot\bcd.temp
bcdedit.exe /store c:\boot\
bcd.temp /create {bootmgr}
/d "Windows Boot Manager"
```

Now make `C:` your active partition using diskpart.

- `DISKPART`
- `LIST disk`
- `SELECT disk #`
- `LIST partition`
- `SELECT partition #`
- `ACTIVE` (<< Marks the partition as active)
- `EXIT` (Exits DISKPART)

Where # are numbers corresponding to your hard-drive and partition under scrutiny. Import this bootmanager into our configuration.

```
bcdedit.exe /import c:\
boot\bcd.temp
```

Continue configuring this bootloader.

```
bcdedit.exe /set {bootmgr} device
partition=C:
bcdedit.exe /timeout 10
del c:\boot\bcd.temp
```

At this point you will be having a clean and working Windows 7 Bootloader, now we must add an entry for the operating system.

```
bcdedit.exe /create /d "Microsoft
Windows" /application osloader
```

Bcdedit.exe will now return a GUID for the newly created entry. Which would look something like this {3F2504E0-4F89-11D3-9A0C-0305E82C3301}, now for the final slew of commands. These commands basically fill-up details for the boot loader entry. Again make sure to replace C: with whatever is the correct drive for your Windows Vista/7 installation.

Ubuntu 11.10 Wine issues

Weird problem with Ubuntu 11.10: Whenever I right click an application, go into properties and tick the 'allow executing file as program' option so that I can run it with wine, it automatically unticks itself. No matter how many times I keep clicking on it, it still returns the same results. Please help!!
Regards,

Sameer.

You will need elevated privileges to allow a file to be executed as a program. Go to Terminal, Navigate to the directory where your file resides and type in the following:

```
sudo chmod +x <filename>
```

After this it will ask you for your password. Enter the password and you are good to go

Online buying woes

I want to buy an Amazon Kindle Touch WiFi sponsored edition, but it's still not available in India. So I was thinking of purchasing it through eBay GEB, it's available for around ₹ 7500. Now I don't know whether to trust this way of purchasing as I know it's not official and also I have never purchased through eBay so I don't know whether the guy with whom I am making a deal is trustworthy or not. Can you suggest me some other websites through which I can make this purchase.

Nirvaan Gandhi

GEB works well, but you can also order directly from amazon.com

GOOGLE CALENDAR

Google Calendar is an awesome time-management offering from Google. Apart from organising your schedule and letting you share events with friends, Google Calendar has a trick or two hidden up its sleeves. We bring you some of the better ones which will make you a Calendar Ninja.



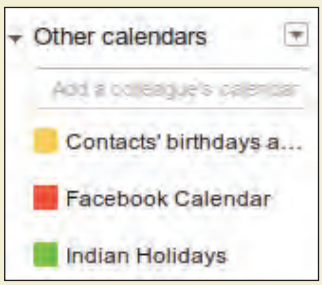
Google Calendar.....01
Data Recovery.....03
Gimp Tweaks.....07

Tips & Tricks has its own page numbers, and does not follow the rest of the magazine's page numbers. This is done to ensure that you can cut out and save T&T in a separate folder for later reference.

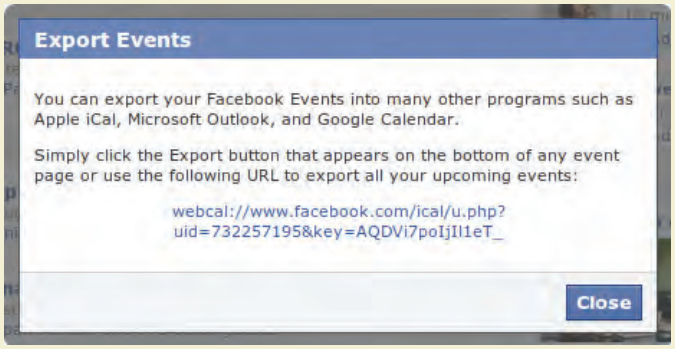
Scan this QR Code to get Google Sync

Export Facebook events to Google Calendar

Facebook is a great way to get in touch with people. Apart from that it also has a feature called Events, where you can organise events, respond to invites and keep up with what your friends are doing. Facebook is also a great way to keep track of birthdays of your friends. You can export both events and birthdays to Google Calendar. Just go to the Events section on your Facebook page. Click on the export link to bring out a pop-up window, copy the URL. In the Google Calendar window, click on the down arrow near "Other calendars" and select "Add by URL". Paste the link in the dialog box that follows and you're done. Facebook events are now imported into your Google Calendar. Similarly, you can also export birthdays of all your friends to Google Calendar.



After importing the calendar



Facebook pop-up with the calendar URL

Syncing Google Calendar with mobiles and other applications

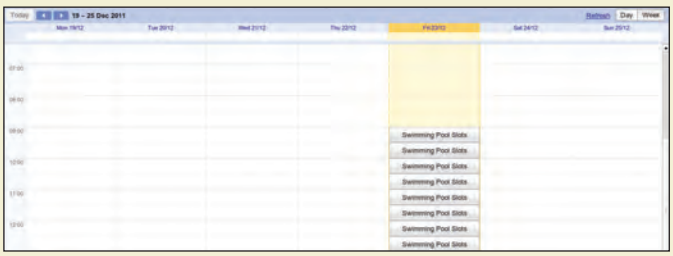
You don't need to log into Google Calendar through your web browser to enjoy the benefits of the service. You can use it from anywhere you want, even your mobile. Starting with PCs, you can sync Microsoft Outlook with Google Calendar to do so, download the Google Calendar Sync utility for Outlook from goo.gl/7Ugu6 after installing it, select the appropriate sync options and time interval and you're done. You can also sync iCal on your Mac or Mozilla Thunderbird with Google Calendar. This is done using CalDAV (a web standard for accessing scheduling information on a remote server). You just need to add a new calendar that points to the Google Calendar servers, you can find detailed instructions at goo.gl/LPrkk. Google Calendar supports Android, iOS, Blackberry, Symbian and Windows phone. Android has Calendar available out-of-box and the experience is specifically optimised for Android and the best among all other platforms. To get Google Calendar on your mobile, scan the given QR code. It will take you to the Google Sync Website. Once you're there, download the application, and add your Google Account details and other sync options and you're good to go.

Appointment Slots

It's a recent addition to Calendar. Say you have a swimming pool or a conference room you want to share with your friends or colleague. You can use Appointment Slots to allocate a resource to one person. To use it, just click on Appointment slots when you see the pop-up dialog after clicking on a time-slot in the calendar. Fill in the details, by going to "Edit details". Copy the URL on the top as the guests will be able to



Setting up Appointments for the given slab of time



This is what the guests will see when they comes to book a slot

book their appointment from that particular site. Now put this URL on a publicly available website and people can come in and book their appointments in a slot that is free. The use of appointment slots is not limited to this. It's a very a handy tool with many possibilities.

Notifications via SMS and Daily Agenda

You can setup Google Calendars to get notifications about an event via a SMS. To do so, you'll need to go to settings and register your mobile phone. Once that is done, select the calendar for which you want to receive notifications (you can get notifications from multiple calendars). Select when you'd like to be reminded before the event.You can also select how to get a reminder via an email, SMS or a pop-up.

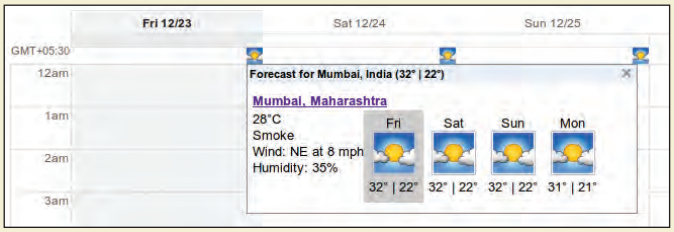
You can also have your daily agenda sent to you (this is sent at 5:00 in the morning), which lists all the events scheduled for the day and hence you can plan your day better. You can also tell Calendar to send you notifications about events like change of time, cancellation, responses and so on.



Just click on the check box to make your calendar public

Weather inside your calendar

Most of us aren't lucky enough to have our phones tell us about the weather. Google Calendar has a nifty little feature that shows weather forecast for the coming days so you can plan you schedule accordingly. To enable this feature, go to the Calendar settings page which can be accessed by clicking on the gear icon at the top-right corner of the screen. Enter your location and temperature preferences and you're done. When you return to the calendar home page you'll see a small icon at the beginning of each day showing that day's weather prediction.



This is how weather is shown in Calendar



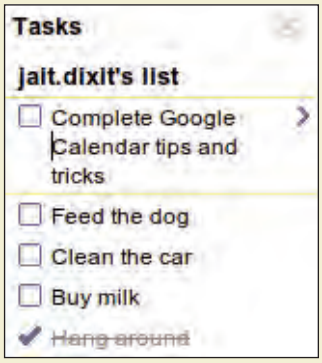
You need to verify your mobile number before receiving notifications via SMS



You can select how much Google Calendar can nag you about an event

Todo lists

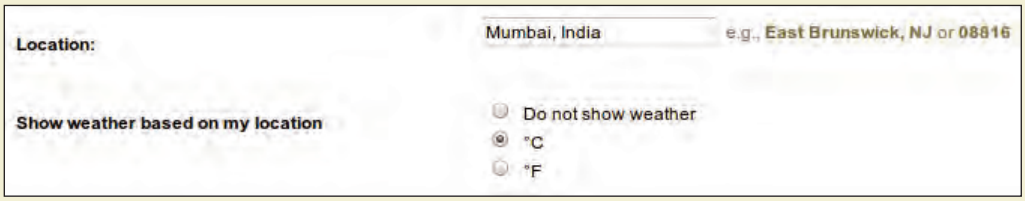
Todo lists have always been an excellent way to boost productivity. Basically a list of all tasks that you have to perform in a day. You go on striking out the ones you've completed. Google Calendar has integrated this feature as Tasks. You just select the Tasks from My Calendars and a pane will pop up on the right-hand side of the screen. You can now add items to your task list. Click on the checkbox as soon as you're done with the task and the item will be striked-out.



This is how a task list looks

Public calendars

Similar to Google Docs, you have the option of making your calendar public. When you choose to do this, all of your events will appear in the public search results of Google Calendar and Google Web Search. Additionally, everyone can add it to their calendar list or use your Calendar Address. You can make your calendar public by clicking down arrow near the appropriate calendar and then select "Share this calendar". In the screen that follows, select "Make this calendar public". You can also share your free/busy information, without the details.



You'll find the weather settings for Google Calendar on the calendar settings page

DATA RECOVERY

Imagine, all your photographs, the painstakingly compiled multimedia collection - music, videos and music, important files and documents gone in the blink of an eye. It's like your worst nightmare coming alive. The reason could be anything from a corrupt file system, a diabolical virus, carelessness or just a cosmic roll of dice. Though all is not lost, the data is recoverable because the information isn't immediately removed from the disk. If you're careful; then you can recover some or most of the data (depends on the severity of the reason that caused the data to go AWOL). Here are some tips on how to try and recover data from a damaged disk.

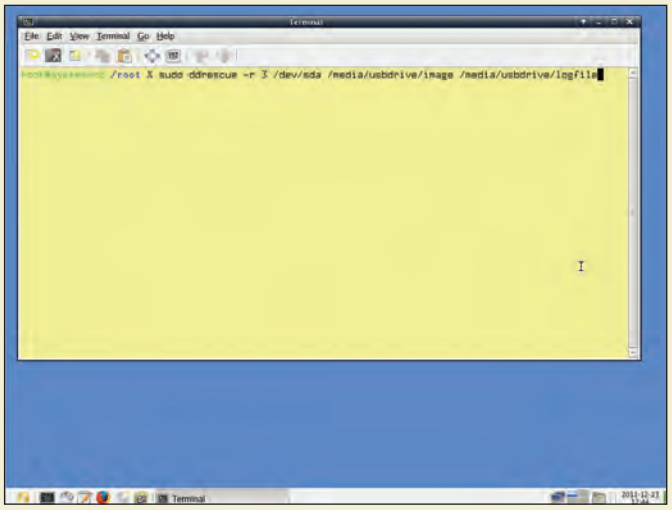
A word of caution

You should NOT write to afailed device, as it can worsen a hardware failure, and over-write existent data in case of lost files. Shut down the affected machine as soon as possible. For recovering you can either use a LiveCD or LiveUSB in case you prefer to use Linux for data recovery. If you prefer Windows you'll have to remove the disk physically and attach to another computer and attempt to recover data.

```
jait@jait:~$ sudo ddrescue -r 3 /dev/sdb1 ~/recovery/myhdd ~/rec


Press Ctrl-C to interrupt
Initial status (read from logfile)
rescued:         0 B,  errsize:       0 B,  errors:       0
Current status
rescued:     1087 MB,  errsize:       0 B,  current rate:   3473
   ipos:     1087 MB,   errors:       0,    average rate:   2588
   opos:     1087 MB,     time from last successful read:
Copying non-tried blocks...
```

Always to use ddrescue to create an image file and work on that image



System Rescue Disc home screen has nearly all the recovery programs needed

Make an image of the lost drive/partition

One thing that is a hallmark of data recovery is the excitement, you feel as if you're Sherlock Holmes, and all that is missing is a pipe. We'll start off buy making an image of the device/drive and work on the image file for data recovery. Though this is not mandatory, if hardware failure is not the problem, you can recover data directly from the device. Despite this it is generally considered to be a good practice to first create an image the device and run recovery software on that image. Keep in mind that if the image size is greater than 4GB you'll not be able to use an FAT32 filesystem (usually found on USB drives)

SafeNet

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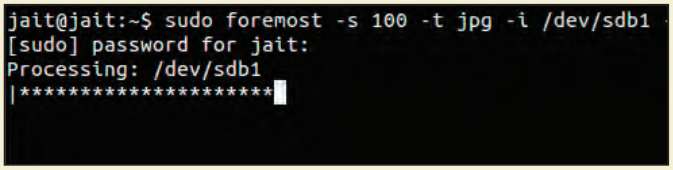
Sentinel
Software Monetization Solutions

to store the image, since there is a 4GB limit to the maximum size of a file on the FAT32 filesystem. Hence you should use NTFS or Ext4 file systems that can handle such file size.

We'll be using a program called GNU ddrescue, this is primarily made for Linux, but is also available on Windows through cygwin. Go to bit.ly/tXPZy7 for instructions on how to install and use cygwin+ddrescue for Windows. It's present on most of the Linux distros, and is a part of System Rescue Disk that has been bundled in this month's Alpha DVD.

First identify the disk or partition that is giving problems using the command `sudo fdisk -l`. Say, if `/dev/sda` contains data to be recovered, you'll need to acquire another disk (or other media) onto which to save the output image. If it's only a partition of that particular drive, the path would look something like this `/dev/sda1`.

The following command illustrates how to image partition.



Foremost will not find any file if you've not selected the file types in the configuration file.

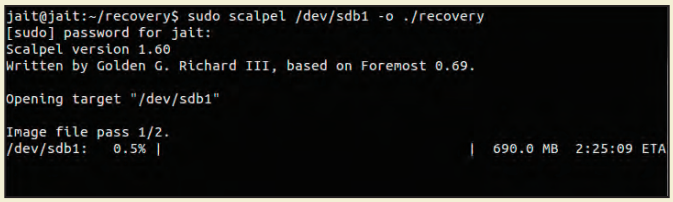
```
sudo ddrescue -r 3 /dev/sda1 <image> <log>
```

You can run successive passes like this:

```
sudo ddrescue -r 3 -C /dev/sda1 <image> <log>
```

GNU ddrescue will use the log file to only read the gaps with errors. In both cases, the `-r` option determines the number of times gddrescue will try to read when it encounters an error (-1 = infinity). Another way to do this will be to copy as much data as possible, without retrying or splitting sectors:

```
sudo ddrescue --no-split /dev/sda1 <image> <log>
```



Foremost's successor, Scalpel is said to give much better performance

Following this let it retry previous errors thrice, using uncached reads:

```
sudo ddrescue --direct --max-retries=3 /dev/hda1 <image> <log>
```

If that fails, you can try again but re-trimmed, so it tries to reread full sectors:

```
sudo ddrescue --direct --retrim --max-retries=3 /dev/hda1 <image> <log>
```

The second method will be redundant in case the device is not physically damaged. If you've just unknowingly deleted the files, then no need to run these commands, you can directly use the recovery programs. In case your media is corrupted and may contain hardware defects, try making images by both the methods, run recovery on both the images. The data recovered may not be mutually exclusive, but will surely increase the number of files recovered. Now on to the actual recovery, you can use the programs that follow in any order you want or even all of them if you want.

Foremost

Foremost is a command-line tool which can recover files from a number of filesystems, including FAT, Ext4 and NTFS. This tool works only in Linux. Foremost can recover files from an image of the drive, or from the drive directly. Consider the situation where an external hard disk at `/dev/sdb1` is damaged. To attempt an recovery from the hard drive, use the following commands:

```
mkdir ~/recovery
sudo foremost -i /dev/sdb1 -o ~/recovery/
```

To run Foremost on an image, just substitute the filename for the device

```
sudo foremost -i <image> -o ~/recovery/
```

The recovered files will then be owned by root. Change their ownership so that you can use them:

```
sudo chown -R youruser:youruser ~/recovery
```

Use the `-w` switch to obtain only an audit of recoverable files:

```
sudo foremost -w -i /dev/sdb1 -o ~/recovery
```

To recover only specific file types, use the `-t` switch:

```
sudo foremost -t jpg -i /dev/sdb1 -o ~/recovery
```

Scalpel

Scalpel is a fast file carver that reads a database of header and footer definitions and extracts matching files from a set of image files or raw device files. Based on Foremost, it's actually much more efficient. It's available for both Linux and Windows. For running it on Windows, you'll need "mingw" (MINimalist Gnu for Windows) installed. You can get scalpel from bit.ly/vnn9o7, once it is downloaded extract it, head over to the src directory and use the command to install it.

```
mingw32-make -f Makefile.win
```

Once done, you'll also need to copy the pthreads and tre regular expression library dlls into the same directory as "scalpel.exe". The default configuration file, "scalpel.conf", has all supported file patterns commented out, you must edit this file before running Scalpel to activate some patterns. Resist the urge to simply uncomment all file carving patterns; this wastes time and will generate a huge number of false positives. Instead, uncomment only the patterns for the file types you need. To run scalpel use the following command.

```
sudo scalpel FILE -o DIRECTORY
```

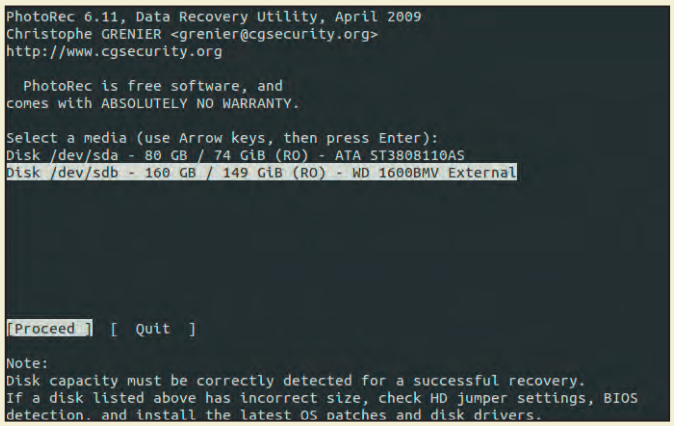
Where FILE is the image file (or device) and Directory is the output directory. Here the configuration file in the current directory is used. In case your configuration file resides somewhere else use the `-c` switch to specify the location of the configuration file.

PhotoRec

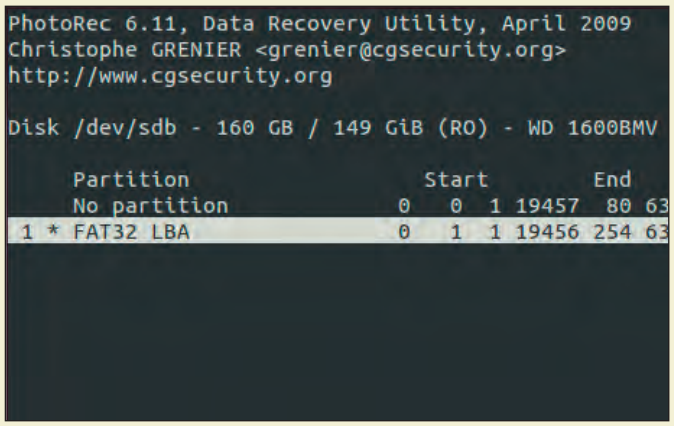
PhotoRec is a data recovery software designed to recover lost files including video, documents and archives from hard disks, CD-ROMs, and lost pictures (thus the Photo Recovery name) from digital camera memory. PhotoRec ignores the file system and goes after the underlying data, so it'll still work even if your media's file system has been severely damaged or formatted. PhotoRec is bundled in this month's Alpha DVD. There is no need for installation, extract the downloaded zip file and just run photorec_win.exe as an Administator.

If you want to run PhotoRec on a disk image you'll have to specify which image

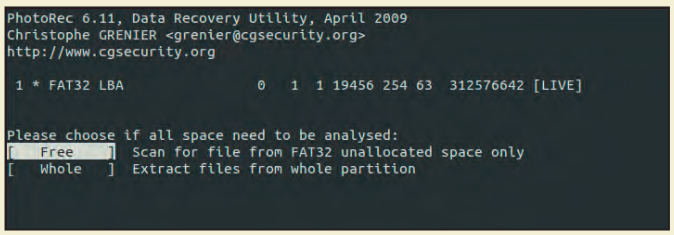
file to use. In case you run PhotoRec directly you'll get prompt which asks for which device to use. Select the device on which you'd like to attempt recovery. Followed by the partition table type, in most cases it's Intel, unless you have changed your partition table type. After this you'll be asked to select the partition on which you'd like to run PhotoRec. Select the filesystem type when asked. This is followed by a prompt which asks you whether to search for files in free space only or the whole disk. After this you'll be asked for the output directory where you want the recovered files to be places. Thats it PhotoRec will have started running and copying recovered files to the



Select the appropriate device, you'll not get this screen if you've opened PhotoRec specifying an image



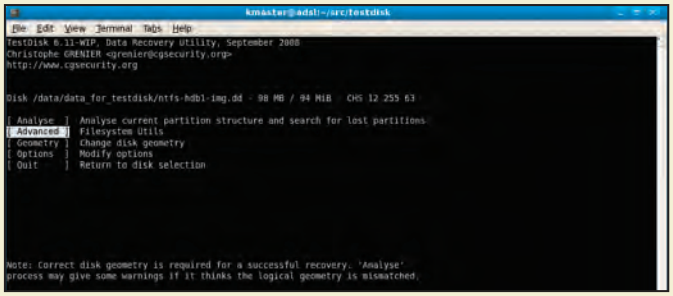
Select the partition from which you want to recover the data



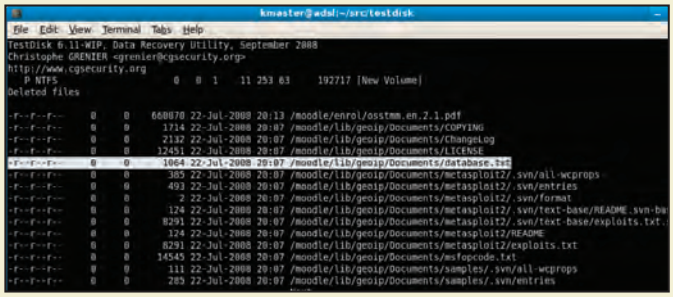
PhotoRec provides an option to either scan the whole disk or just the free area on the partition

Test Disk

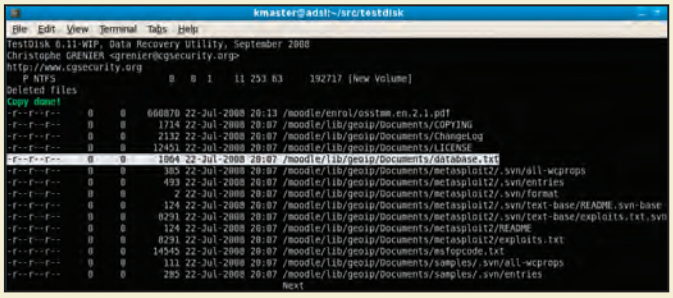
TestDisk is primarily designed to help recover lost partitions and/or make non-booting disks bootable. It also has an option to recover files. The interface is much like Photorec. They're a part of the same package, TestDisk is also bundled with this months Alpha DVD. Select the appropriate hard disk, partition table type, partition and file system. This will bring you to the main menu. In the menu go to 'Advanced', select the partition that was holding the lost files and choose 'Undelete'. After this TestDisk scans MFT entries for deleted files. Go throught the files that Test Disk just found out select the files you want by pressing c. Once done proceed to select the output folder and you're done, TestDisk will copy those recovered file to the destination.



'Undelete' option in TestDisk is available under the Advanced menu



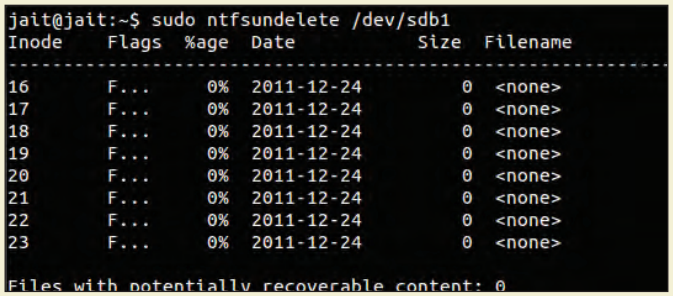
Select the files you want to recover from the list provided



TestDisk will copy the recovered file to the output directory, it will not delete the original data

NTFSUndelete

Windows 7 and Vista both routinely put a "recovery partition" at the front of drives now even as fresh



Use NTFS Undelete to recover data from a Windows partition

```
jait@jait:~$ sudo autopsy
[sudo] password for jait:

================================================================================

                    Autopsy Forensic Browser
                http://www.sleuthkit.org/autopsy/
                           ver 2.24

================================================================================
Evidence Locker: /var/lib/autopsy
Start Time: Sat Dec 24 12:36:46 2011
Remote Host: localhost
Local Port: 9999

Open an HTML browser on the remote host and paste this URL in it:

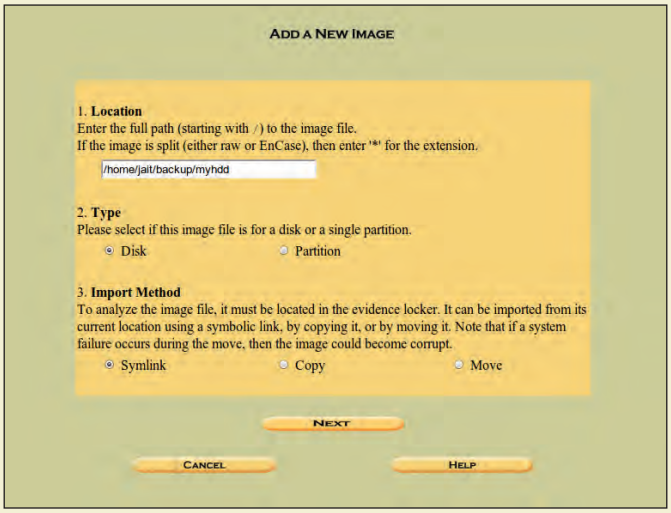
    http://localhost:9999/autopsy

Keep this process running and use <ctrl-c> to exit
```

You'll need to keep the Autopsy process running in the background to access the web interface



The Autopsy web interface



Select the image on which you want to run Autopsy

installs from their installer CD/DVD. The idea seems to be that you can make a fresh installer CD tailored to your particular machine.

Anyway, the important result for us is that a lot of documentation assumes Windows will be on `sda1` but in fact nowadays the important stuff, your stuff, is likely to be (or have been) on `sda2`. Of course it could easily be somewhere completely different but this is the general case, and in most cases this is the default layout of the new breed of systems.

Look for deleted files on `/dev/sda2` using the command `ntfsundelete /dev/sda2`
To look for deleted documents on `/dev/sda2` use

```
ntfsundelete /dev/sda2 -s -m '*.doc'
```

To look for deleted files between 5000 and 6000000 bytes, with at least 90 per cent of the data recoverable, on `/dev/sda2` use

```
ntfsundelete /dev/sda2 -S 5k-6m -p 90
```

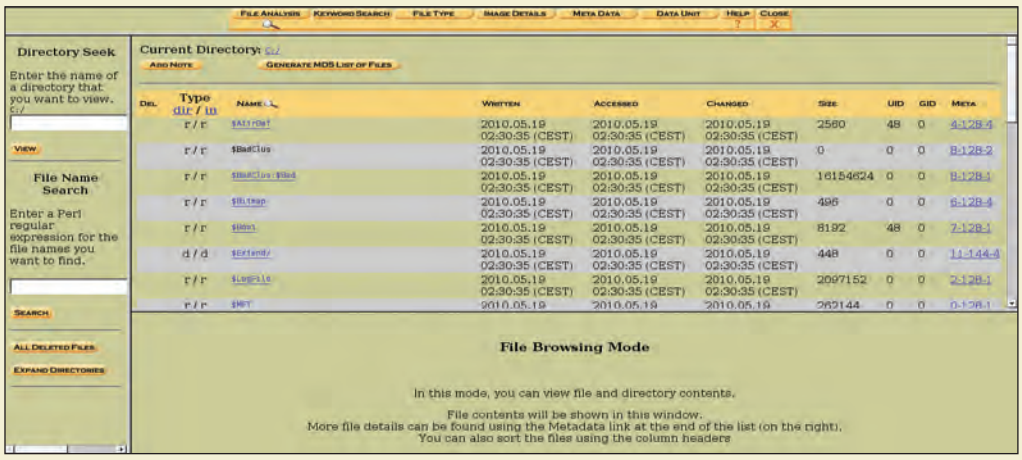
And if you're looking for deleted files altered in the last two days

```
ntfsundelete /dev/sda2 -t 2d
```

Sleuth Kit and Autopsy

As the names themselves suggest, these are tools used by professional forensic experts to snoop out data from hard disks. You can also use these tools to recover data as well. Mindwell they are available only for Linux and not Windows. You can use System Rescue Disc or any other Linux LiveCD/LiveUSB to use both these software. In this case we're doing it using Ubuntu. First off create a disk image of the disk or partition using ddrescue as shown earlier. Now start Autopsy from the command line using the following command sudo autopsy.

Now open a web browser and go to the page `http://localhost:9999/autopsy`. In the graphic interface that follows choose "New case" and follow the questions that the wizard asks you. When prompted for the location of the disk image enter select the disk image that you've created. After Sluethkit analyzes the disk image it will display a listing of the disk's partitions. Choose the partition where you deleted file was saved and click `Analyze -> File Analysis`. Along the left hand side of the screen you will see a search box where you can search for the deleted file by name. Enter the file name and click Search. A list of the files matching your search text will appear. Browse the list of files and click on the hyperlink name of the file that you would like to recover. Once the file finishes loading click the Export hyperlink and wait for your web browser to prompt you to save the file. Test to make sure your "deleted" file opens correctly.



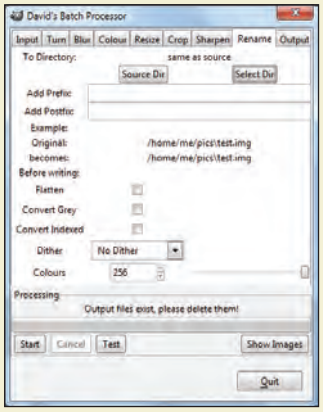
Autopsy uses Sleuth Kit tools to recover data, click on the hyper link of the file you want to recover and it will be downloaded through your browser

GIMP TWEAKS

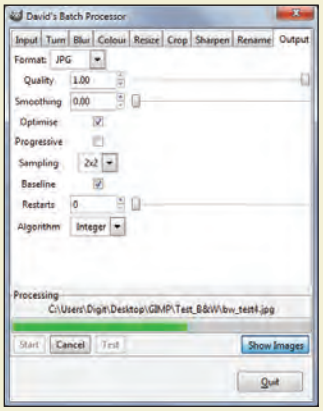
It's the holidays! Besides gifts, that means boatloads of photographs. In case you want to give a professional finish to the photographs, but don't want to sell your kidney to get the software, Gimp comes to your rescue. It gives the other biggies in the segment a run for their money. With loads of functionality and customisations up for grabs. Here are a few tricks to make your life easier.

Batch process your images with Gimp

Gimp doesn't have batch processing built into the core software. A simple batch processing plug-in DBP (David's Batch Processor) allows the user to automatically perform operations (such as resize, blur, sharpen) on a collection of image files. This plug-in is included in this months Alpha DVD. Just copy the executable file and place it under `GIMP_INSTALLATION_FOLDER\lib\gimp\2.0\plug-ins`. Now restart Gimp. You'll find Batch Processing listed in the Filters menu. Clicking on Batch Processing will bring up the DBP dialog box. The mechanics are simple, each tab stands for one operation — select input files, enable the operations you'd like to perform and fine-tune the respective settings. Select output file type and parameters and you're done. There's one catch here though, the default directory for output is same as the current working directory, hence you'll have to change the output directory with the "Select Dir" button in the Rename tab.



Change the output directory from Rename tab



Batch processing in progress

Colour correcting your photographs

Many times, you'll come across an image with a colour cast i.e. the picture is evenly affected by a tint of a particular colour. One of the main problems in dealing with such photographs is that we don't know which colour to correct. One of the solution is to target an area of the image that should be white (but isn't), for example, the white of the eyes or a wall which should be white. If there aren't any white areas in the image take the most neutral (grey) area of the image and in case you have no grey areas, go with the actual color values, for instance skin tone should be a balanced magenta and yellow with cyan being 10-15 per cent of that value.



An image afflicted by Jaundice



After colour correction

Select the Color Picker Tool (O) and click the area which should be white but isn't. In our case, it's the flowers that should be white. Now, click on the Foreground Color box to get the color selection dialog. Here, set the Saturation(S) to 100 and Value(V) to 60. Create a new layer and fill it with foreground color. With the new layer selected go to `Color > Invert`. Once this is done change its blend mode to Overlay. We're not quite done yet. You'll get another color cast, in this case the photo has acquired a bluish tinge. To counter this, lower the opacity of the foreground color layer till you get desired result. The value of opacity depends on the image you're working on.

Note that this method quickly removes color casts but it isn't the only way to colour correct over all channels. Use Levels and Curves for better control and more effective color correction.



Changing the opacity of the overlay layer

Instagram without iPhone, really?

Named App of the Year for 2011 by Apple, Instagram lets you apply filters to photographs and publish them to social networks. Gimp plug-ins (akin to Photoshop actions) make your photos look as if they were processed by Instagram. Two of the more famous filters are Lomo and Vintage. You will find these two and many other plug-ins in this months Alpha DVD. To install them first find the folder where plug-ins are stored. You can find this folder by navigating to `Edit > Preferences > Folders > Scripts`. Once the folder is identified, just place .scm plug-in file from the DVD into that folder. Refresh the script library by going to `Filters > Script-Fu > Refresh Scripts` and you're done.

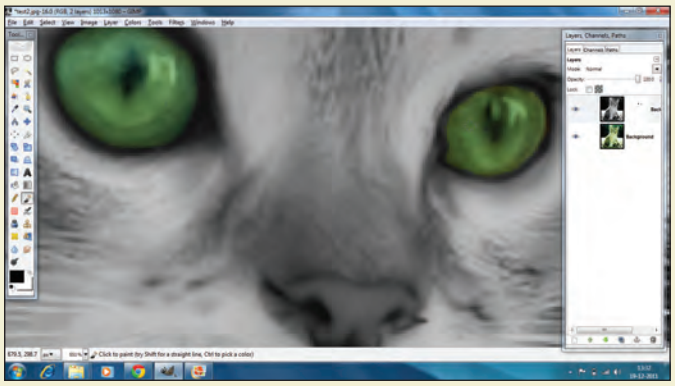


Picture before using Vintage plug-in



Kitty has gone vintage

You'll find the plug-in(s) listed under the Filters menu. Once installed, Lomo can be applied by navigating to `Filters > Light and Shadow > Lomo...` and Vintage is found at `Filters > Artistic > Vintage Look`. On selecting the menu item a dialog will pop up letting you control some aspects of the scripts, you'll need to experiment with different set-



Photograph after using the brush on the layer mask

tings to get the desired result. Doing this manually will take some effort, but the end result makes the effort worth it. You can find more plug-ins and add-ons at goo.gl/uFgOm.

Selective colorisation

If you fancy yourself to be the next Steven Spielberg this technique holds the key. In selective colorisation the photograph is almost entirely converted to black and white, but some parts are left in color for a dramatic effect. To achieve this, duplicate the image layer, by clicking on the Duplicate button in the Layers window. De-saturate the duplicate layer, by going to `Colors > Desaturate..` and select "Average" for converting that layer to black and white.

In the Layers window, right-click on the B&W layer and select "Add Layer Mask". In the Add Mask Options dialog, select White (Full Opacity). Now, select the Brush tool, making sure that the foreground colour is black. Select a large brush size and start painting the interior of the parts you want to be coloured. Zoom in when you reach the edge, select a smaller brush with feather for the fringes. Double-check to see if you've left out any part. And Voila! you are done.



An LDR image



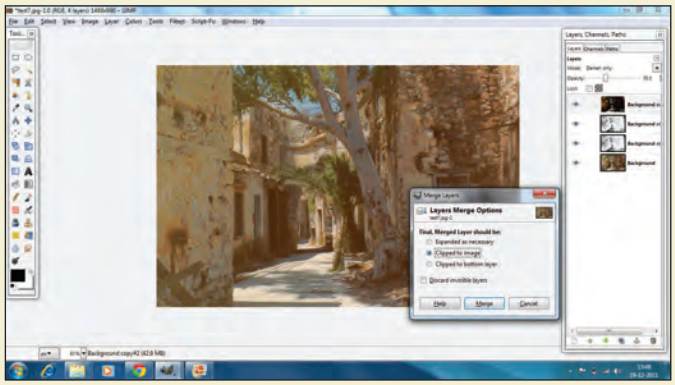
Same image in all its (false) HDR glory

Hassle-free HDR images

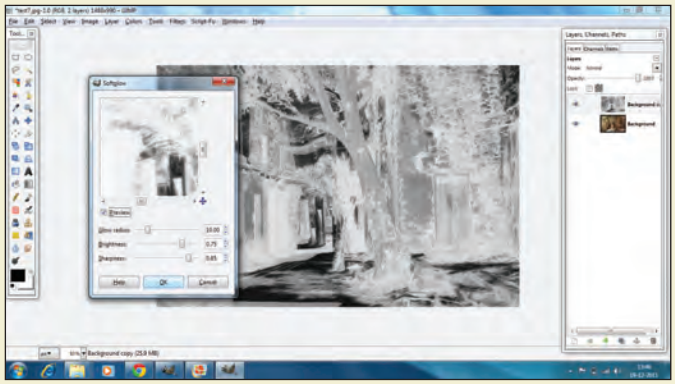
HDRI stands for High Dynamic Range Imagery, which essentially is a set of techniques allowing a greater dynamic range between the brightest and darkest areas of the image. Normally, such images are computer renderings, or multiple low dynamic range (LDR) images merged into one.

It's easy to emulate this effect in Gimp, without the headache of merging multiple files followed by tone-mapping. Firstly, install the Dodge and Burn plug-in bundled with this months Alpha DVD. Before you go all out on converting the image to an HDR one, adjust the brightness and contrast to your liking. In case you're confused about the best way to do this just run `Colors > Auto > Whitebalace`. In most cases it will even out the brightness and contrast.

We'll start off by duplicating the image layer. De-saturate the duplicate layer, by going to `Colors > Desaturate` and select "Average" in the dialog that appears. Now, with the same layer selected go to `Color > Invert`. Next, apply the soft glow filter by going to `Filters > Artistic > Soft Glow`. Set this layers blend mode to soft light and its opacity to 50 per cent. Now duplicate this layer and set that layers opacity to 75 per cent. Duplicate the original image layer, and bring it on top of all other layers. Go to `Colors > Levels`, and set the black point in the dialog to 100. The image should now become darker. Change this darker layer's blend mode to "Dark only" and set this layer's opacity between 30 to 50 per cent depending on the image. Right-click on the top-most layer and select "Merge Visible Layers", in the dialog that follows, select "Clipped to image". Now run the Dodge and Burn plug-in, you'll find it under `Script-fu > Enhance > Dodge and burn`. In the dialog that follows set Thin to 10 and Thick to 25 (though these values are dependent on the picture, you'll need to experiment with this tool to get the desired result). Once this is done select the image layer (you'll get two additional layers called Dodge channel and Burn channel) go to `Colors > Hue-Saturation`, and set the saturation to 50. Next go to `Colors > Levels` and set the black point to 25. Thats it, you just got your faux HDR image.



Merging the layers after performing the first set of operations



Applying the Glowing Edge effect to the newly created layer



<Interview>
Harish Pillay,
Global Community and Technology Architect, Red Hat Inc.
on pg. 58. For full interview visit:
dvwx.in/jan-12-hp



Now HP makes its OS... open source

For all those worried about the fate of the webOS mobile operating system, there is some great news; HP has decided to open-source the OS so that it can be further developed by the community. HP hasn't itself thrown in the towel with webOS though, and it claims that it will continue to actively develop the OS.

While webOS is based on the Linux kernel, most of the OS is closed source. Soon that will no longer be the case. HP's OS is quite similar to what Mozilla's Boot to Gecko, and Tizen intend to be, i.e. a mobile operating systems, which can be developed for using standard web technologies. Hopefully this open sourcing will also be of help to those other projects. While initially only the "underlying code" of webOS will be available as open source, eventually the application framework of webOS, ENYO will also be open sourced.

At one point of time there were rumours of webOS running on all kinds of HP devices, from mobiles and tablets to even laptops, PCs and printers. But of late its future has seemed uncertain. Now even if HP decides to abandon it, at least the open source community will be able to continue supporting it. To avoid fragmentation of webOS, the projects governance will be "open and inclusive." >

Join us on Facebook at **dvwx.in/dvwx-fb** and post your comments.

*side panel



*Silverlight 5's here. What's new?

>>Microsoft recently released, what might just be, the last version of its Silverlight plug-in. Silverlight 5 is now finally available after over two years of development.

http://dvwx.in/jan-12-1

*Flex SDK 4.6 now available

>> Adobe has released what could be the last Flex SDK under its governance, before being handed over to the Apache foundation.

http://dvwx.in/jan-12-2



*WordPress 'Sonny' released

>>The WordPress community released the latest version of the popular framework, with UI enhancements such as jQuery and iPad optimisation for the admin panel.

http://dvwx.in/jan-12-3



For latest news, updates and features, join us on Facebook at **facebook.com/devworx.in**

*footer

*Doom is open source!

>> The Doom 3 engine, or the id Tech 4 engine first appeared in Doom 3 back in 2004, and was also used in Quake 4 soon after. It has now been made open source. Developers can now create their own games based on the engine, or modify the Doom 3 engine itself and use it to play the game:

http://dvwx.in/jan-12-f1



*Mozilla apps!

>>Mozilla Apps is an alternative closed app markets. It allows selling applications in multiple stores and installing web applications on any browser.

http://dvwx.in/jan-12-f2

*Google app engine

>>Google has announced a new release for the Google App Engine. There are several platform changes and new APIs. For example, there is a new Frontend Instance Class for applications that need more CPU and memory to serve requests. Also, a new High Replication Datastore (HRD) migration tool has been supported as a feature. There is a new Conversion and Logs Reader API. For details:

http://dvwx.in/jan-12-f3

Open source in 2012

THE YEAR ahead in the free world

<Open source platforms such as apache, chromium and sqlite have continued to grow despite closed source alternatives> **By Kshitij Sobti**

The open source movement continues to strengthen every year, such that no matter who you are, what software you use, what book you read, whatever you do somewhere along the line open source software is in use.

2011 has been a good year for open source, and now we look forward to what we think are some important developments to look out for in 2012 in the field of open source. We've classified open source software mentioned in this article under the headings of "Web", "Mobile" and "Desktop".

WEB

HTML5 / CSS3 / JavaScript / other standards

A number of standards are emerging that make 2012 an interesting year for web standards. The Mouse Lock and GamePad APIs aim to improve the state of web games.

CSS3 has added a number of new specifications; Exclusions and Regions allow print style layouts; Flexible Box makes it easier to develop user interfaces; and CSS3 Paged media allows pagination for better access than scrolling on devices; and more.

Mozilla's WebAPI specifications are also being developed and matured, and cover everything needed to develop applications for mobile, from access to battery status, to contacts and SMS.

Mozilla Boot2Gecko

Boot to Gecko is Mozilla's attempt to make a mobile operating system that is completely open, and applications are written using web standard languages such as HTML, CSS and JavaScript. 2012 should see the release of preview versions of this OS.

WordPress

Wordpress' meteoric rise is far from over. Wordpress 3.3 just managed to release near the end of the year, and WordPress 3.4, 3.5 and 3.6 are likely to release in 2012. WordPress has tried to make it easier for developers to use the CMS with each release, and we can expect great things from it this coming year.

Mozilla Firefox

Firefox has a good year ahead of it; 2012 will see the release of Firefox 10 to 18, and some great things like in these releases. In Firefox 10 and 11 Mozilla will expand on the collection of developer tools available in Firefox to include a style editor, an inspector, a debugger and more.

Lying further ahead is an overhaul of Firefox's interface, a new tab page, a home tab, the ability to push a tab from desktop to mobile, a new download manager, support for installing web apps, and much more. Also releasing is a version of Firefox for tablets, and Firefox for Android with a native UI.

Google Chrome

Google Chrome has now surpassed Mozilla Firefox in usage and it is likely that it will keep growing. For good or bad Google is continuing to push the envelope of web applications. Native Client, which allows you to write code for web apps in native languages such as C++ is maturing and can greatly improve web app performance. Google's Dart might also make it into the browser in some from in 2012.

MOBILE

PhoneGap / Apache Callback

PhoneGap aims to make it possible to develop web applications that run natively on mobile. With an extended API, PhoneGap apps can access device features such as compass, contacts, notifications and vibration. The app can then be packed for any and all of iOS, Android, BlackBerry OS, webOS, Symbian, bada, and Windows Phone. Adobe bought Nitobi, its creators, and contributed this project to Apache. Adobe added support for creating and testing PhoneGap applications in Dreamweaver CS5.5 and it is likely more integration will come in the future.

jQuery Mobile

If you're a web developer, it's a given you've heard of jQuery. jQuery Mobile is a jQuery-based framework for developing websites that work well on mobile. The framework makes it easy to create good looking, touch-friendly websites for mobiles without even needing to touch JavaScript or CSS. It can automatically enhance your HTML site if you give it a few hints. jQuery Mobile had its first major 1.0 release just recently and 2012 should see more releases now that the basic stuff is done. Combined with Apache Callback above, it is a great tool for making simple web applications.

webOS

HP has just announced that it will open source webOS. Despite the recent turbulent times for this OS, by becoming open source it should live on in some form or the other no matter what. HP will also be opening its ENYO framework for making applications for webOS. With any new open source project comes a barrage of new development and improvements, and ports to different platforms. webOS should be no different. Both Tizen and Boot to Gecko are similar products and might gain from this. 2012 should be exciting year indeed for this under-appreciated OS.

Plasma Active

Plasma Active is a project by KDE for creating a tablet-centric UI based on the KDE Framework that is completely open source, yet powerful to use. In the short time since its announcement, Plasma

Active has made good progress, and already has its second release. In 2012, it is expected that KDE will announce Plasma Active available preinstalled on tablets, so that it can expand in scope beyond just the few geeks who know how to install multiple OSs on their tablet devices.

Android

Android tablets still haven't taken off as well as their iOS counterparts, but will Android 4 change that trend? 2012 is when we would find out. Android has become increasingly important in the mobile segment, and being free and open source means that it is quite likely to be found on lower-end tablets. Android tablets will be able to beat Apple ones in price if nothing else, and sometimes that is enough, especially in India.

Tizen

From the ashes of Nokia's Maemo, and Intel's Moblin, and their child MeeGo, comes Tizen. A fresh new project, that has the same goal as its ancestors, to run on mobile, tablet, netbooks, IVI systems and TVs. Tizen, however, is intended to be based entirely on web standards. It is similar to Mozilla's Boot to Gecko and webOS in many respects. 2012 will see its first release, and we will see if Intel can still make a compelling OS.

DESKTOP

Ubuntu

Ubuntu 12.04 will be an important release for a number of reasons. First, it's the first long term release since their new desktop environment Unity, so significant work will go into it to stabilize and refine it. Secondly, it will be the first long term desktop release from Canonical to get a 5-year support period, up from 3 years. Canonical is also working on mobile / tablet versions of the OS, which should also see some activity in 2012.

Linux Mint

Linux Mint 12 has already shown that it's possible to have a good compromise between the old Gnome 2 and the new Gnome 3 user experience.

> "The open source technologies I see gaining momentum in 2012 are cloud computing (CloudForms and OpenShift), Infinispan and cloud storage."

—**Anuj Kumar,** MD, India Subcontinent, Red Hat India

*pointers

>>Nuggets of cool code at work.



*Plasma Active Two

>>This is an introduction on the use of the first release of Plasma Active. This has a demo on a WeTab device.
Duration > 02:46
http://dvwx.in/jan-12-p1



*What's new in "Sonny"

>>This video tutorial shows you how to update your website to the new version of WordPress 3.3.
Duration > 05:39
http://dvwx.in/jan-12-p2



*Mozilla's Boot to Gecko demo

>>B2G is being developed entirely in the open. Here's a demo of Mozilla's software platform for mobile phones.
Duration > 01:24
http://dvwx.in/jan-12-p3



*jQuery Mobile ThemeRoller Preview

>>This is a preview of the new jQuery Mobile ThemeRoller tool, shown during Todd Parker and Scott Jehl's keynote session at jQuery Conference 2011.
Duration > 06:27
http://dvwx.in/jan-12-p4

> "Developers believe IBM Watson's sophisticated analytics will transform industries that are managing massive amounts of data."

—**Himanshu Goyal,** Country Manager Academic & Developer Relations, Career Education & Localization IBM India/SA

As Gnome 3 matures and becomes more capable, it will be interesting to see the direction Mint takes. It has already attracted a large number of Ubuntu users who were unhappy with the new Ubuntu UI.

Qt 5

The popular cross-platform toolkit Qt is about release its fifth major release in 2012. Unlike Qt 4, Qt 5 intends to be a quieter, but nonetheless significant release. Backwards compatibility is being given importance. It will be Qt's first release under an open governance model, with the community controlling its direction. KDE software being entirely Qt based, KDE is likely to have a great influence in the direction of Qt 5.

KDE Frameworks 5

With the release of Qt 5, comes KDE Framework 5. However it will not mean a major release for the KDE software. Major updates to KDE are coming in the way its libraries are organised making them more modular and simplifying it for third-party developers to use only a few of the libraries in their apps.

Lightworks

Linux has few good quality video editors. However, EditShare is offering a professional quality non-linear video editor on a golden an open source platter. Lightworks is an Emmy and Oscar award winning video editor, used in movies such as The Departed, Pulp Fiction and Mission Impossible. The source code release intend to be in 2011 has now been delayed into 2012.

LibreOffice

Since the community took over development around a year back LibreOffice has progressed a lot. Lying ahead is an overhaul of the UI to make LibreOffice more modern, releases for mobile platforms such as iOS and Android, and even a version of LibreOffice that can run in a browser via the canvas element. >

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>>"In turmoil is when you have an opportunity">>



>>**Harish Pillay,** Global Community and Technology Architect, Red Hat Inc, on the cloud, apps and enterprise

>> In a nation like India, do you see internet infrastructure as a hurdle towards migrating services to the cloud?

Oh yes, that would definitely be a problem. As customer demand increases, so will these factors fall into place. Assuming I'm an SME, and I want to check data for my raw material. I realise I'm unable to have access to my data because it's all in the cloud, then I'm losing money. That's real tangible, measurable input that will push the investment to increase last mile bandwidth and such factors. So it is such positive reinforcement that will push things forward.

>> What kind of a transition do you see with the preference for cloud based apps?

I think the change will be similar to the transition of building your own thin client based application to a browser based application. That transition happened over the last 10-15 years. It will be that kind of a transition. People will adapt to new models, new ways of doing stuff. They would have frameworks, could be Ruby on Rails, or the JBoss deployment platforms. There are many solutions already in place.

>> What kind of time frame are you looking at?

It depends on several factors, even the economy. It depends how compatibility exists between different countries. In turmoil is when you have an opportunity. And right now, there is opportunity. Whoever is first to go an streamline your process; by streamlining, you need to relook at what you have been doing so far, and ask whether you want to continue to do what you were doing.

Read the entire interview online at **dvwx.in/jan-12-hp.** Stay up to date with information at **dvwx.in/dvwx-fb.**

*distro dose



Linux Mint 12 released

>>With an origin in Debian and Ubuntu, Linux Mint is a powerful distro with availability of a large number of packages, and applications. Try it out at:
http://dvwx.in/jan-mint



RHEL 6.2

>>Red Hat announced release of version 6.2 of its Enterprise Linux. For information on the new features, go to:
http://dvwx.in/jan-rhel

*from the shelf

>> suggested reads, that you could consider buying, to augment your skills



Cloud Computing Bible <Price> ₹455

>>This is a complete reference to cloud computing and presents the technologies, protocols, platforms and infrastructure that make the cloud possible.
http://dvwx.in/jan-12-bk1



Windows Phone 7 Application Development: 24 hour Trainer <Price> ₹522

>>Ramp up yourself on Silverlight application development for Windows Phone.
http://dvwx.in/jan-12-bk2



Programming Windows Azure <Price> ₹546

>>This book shows you how to build, deploy, host, and manage applications using Windows Azure's programming model and storage services.
http://dvwx.in/jan-12-bk3



Building the Real-time User Experience <Price> ₹410

>>With websites such as Facebook and Twitter leading the way, users are coming to expect that all sites should serve content as it occurs – it's all about user experience.
http://dvwx.in/jan-12-bk4

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Prefer 140 characters? Follow us: @devworx.

Statusfied
Facebook has increased the maximum length of its status update to 63,206 characters, more than 12x its previous length

Google+ finds your face
Similar to a Facebook's auto-tagging feature, it's called Find My Face

Predictions from VIA

VIA Technologies is the foremost fabless supplier of power-efficient x86 processor platforms, and an important driving force in today's PC, thin client, ultra mobile, motherboard, and embedded markets. The company is also known for its digital media chipsets, and is a leading supplier of telecommunications hardware

Digit recently caught up with Richard Brown, Vice President of International Marketing at VIA Technologies, and discussed the latest in the tablet processor and SoC (System-on-Chip) market, and the company's role in the future of the fast growing segment in India:

Abhinav Lal
Abhinav.lal@thinkdigit.com



Richard Brown, Vice President, International Marketing, VIA Technologies

What is VIA's strategy in the global SoC market?
Our strategy is to provide a turnkey solution, including everything from the SoC to the hardware reference design, firmware, and software to our customers rather than just a chip. This not only helps reduce customer development costs but also enables them to bring their products to market very quickly. On the product side, our focus is on developing low power yet high performance SoC platforms with highly integrated connectivity and multimedia feature sets that meet the specific needs of our key target segments such as tablets.

What, according to VIA, is the future of the low-cost tablet market?
The potential for low cost tablets is huge not just in India but also globally. Indeed, this year we estimate that well over ten million tablets have been shipped worldwide by Chinese white box tablet manufacturers, which makes it the second largest segment in the market after the iPad, and we expect the volumes to continue to grow dramatically in 2012.

What does VIA think of India's tablet market potential?
The potential for tablets in India is huge. You just have to look at the growth in the country's mobile phone market over the past five years to see the possibilities. For millions of people, tablets will provide the first affordable large screen device that allows them to experience the Internet. For companies, the tablet provides a low cost means of digitizing their sales and other operations and allowing employees to access the data and applications on their corporate cloud from almost anywhere in the country. As for education, India is showing the whole world the potential for tablets in universities, colleges, and schools with its Aakash project. The possibilities are extremely exciting.

How is VIA working with various partners in India to enable local manufacturing?
Establishing manufacturing facilities in India is extremely important to ensure stronger support for our tablet customers and also over the longer term foster localized innovation to meet the specific needs of the market. Currently we are working with a number of partners who are setting up manufacturing facilities in India and will be making more announcements about the specifics early in the new year.

Does VIA intend to work on other segments of the tablet market, other than low-cost?
We have an extremely aggressive roadmap for improving the performance, power consumption, and functionality of our SoC platforms in the future and as we implement this we will be able to address different segments in the market. There are a lot of exciting opportunities for innovation around the tablet form factor.

What is your most popular SoC platform used in tablets currently?
For tablets our most popular SOC platform is the VIA WM8650. This features a high-performance, low power ARM core with excellent multimedia capabilities.

Which tablets currently run on VIA technology? Which of these are available in the Indian market?
There are over thirty manufacturers producing tablets based on the VIA WM8650 in a variety of 7" and 8" screen form factors. 10" models will be available early next year. There are a lot of companies in India selling VIA WM8650 tablets in the market including Simmtronics and Wishtel as well as a lot of smaller brands. It is difficult to get an accurate picture of the India tablet market because it is growing so fast, but we would estimate that we have the largest share of it.

What is VIA's role in the current mobile market?
VIA Telecom is the second largest supplier of CDMA phones in the global market, and its chips are used by some of the world's leading mobile phone brand names. Many of the CDMA phones sold in India are based on VIA Telecom chips.



The Icons of Trust report taps into the collective intelligence of readers just like you and in turn empowers you to make the right purchases.

ICONS OF TRUST

The results are out, and it's time to hear what India's largest and most influential technology community has to say to all the brands out there.

Ernest Hemingway once said, "The best way to find out if you can trust somebody is to trust them." While this tongue in cheek approach can work sometimes, when it comes to technology products most of us have our hands burnt many times before. And when the stakes are high (thousands of rupees of your hard earned cash) you wouldn't want to take that chance. This is where we come in. By tapping into the collective wisdom of India's most influential tech community, we bring to you our Icons of Trust report. Our mission (and we choose to accept it every year) is to analyse which brands our readers trust most and why. The Digit community is not only the oldest and most influential tech community but thankfully the most vocal. When our readers speak, brands sit up and listen.

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DTH, HDTVs, Flash / SSD, PMPs (or MP3 Player / DMP), Tablet, Mice, Home Theatre / Speakers, Monitors, Keyboard, UPS

www.thinkdigit.com/iot2012

What builds trust?

The quality of the products themselves should ideally be the most important parameter by which consumers build their trust in a particular brand. In reality, however, there are a myriad number of factors which go into this overall T-factor. For instance, consumer perception - driven to a great extent by aggressive marketing strategies employed by companies - contributes a lot. At the outset at least, a weak product will gain some amount of traction in the market thanks to this sort of a push, until word spreads. As a technology navigator our role is to prevent even these initial disappointments by way of our news, reviews, buying guides and analysis, by which we aim to empower the consumer. We cut through the jargon and distill some unbiased, objective and rational advice your way. The Icons of Trust research report is one such effort that collates the collective intelligence of people just like you and in turn empowering you to make the right purchases going forward. For tech brands it's an opportunity to put their ears to the ground and gauge the rumblings of their consumers.

How is trust calculated?

All respondents are asked to complete a rather long and comprehensive questionnaire, which aims at arriving at scores for six parameters: Awareness, Availability, Credibility, Loyalty, Quality and Satisfaction. These six factors are what determine how much the respondents "trust" a brand.

Awareness: Not all of you own a product from all the categories we cover, but buying decisions depend a lot on your awareness and the market's awareness of a brand. You're not likely to buy or recommend something you've never heard of before, are you?

To quantify awareness, we asked the respondents open ended questions to judge unaided brand recall and later revealed a list to measure aided recall. Awareness is like a much needed popularity contest and depends a lot on how well a brand markets itself within our shores. Awareness had a weight of 10 in the overall score.

Availability: How easily a brand or more importantly a desired model of a brand is available is an important factor in building trust towards that brand. Products that forever remain on a consumer's wishlist for lack of availability are not really worth the hype

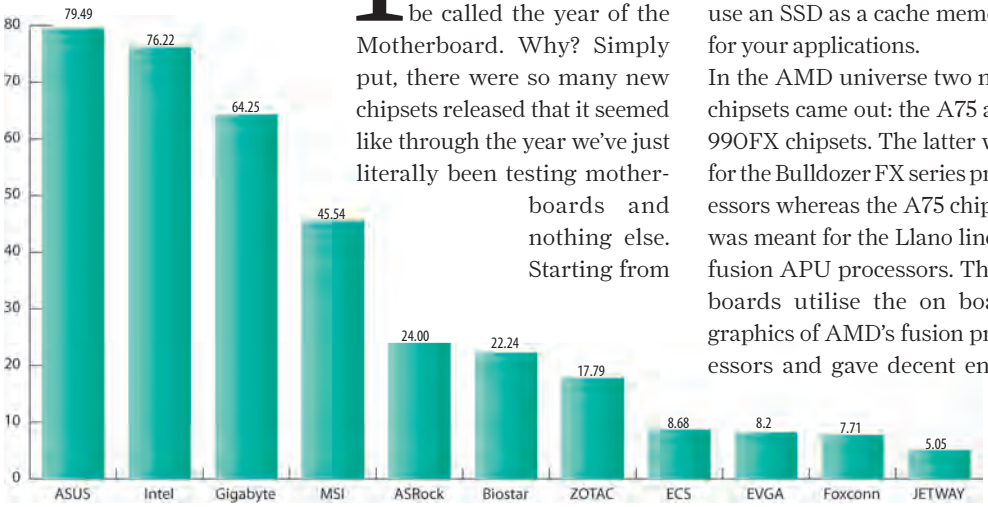
Credibility: Questions that assessed credibility tried to bring out how much respondents trusted a brand. Questions were asked to gauge what respondents felt about the improvements in a brand's products, technological advancement, ease of use etc. This parameter was a substantial contributor to the overall trust index, weighing in at 15 per cent.

Satisfaction: As owners of a brand's products, how satisfied you are with a product is one of the key factors that influence how much you trust the brand. Questions judged after sales service; whether repairs and service was hassle-free, how easy was it to get after-sales support etc. Weighing in at 15 percent this was one of the more important factors contributing to the overall trust index.

Loyalty: Although at Digit we strive to give fanboyism a wide berth, you have to give credit to brands for being able to incite passion in their buyers. To ascertain loyalty we asked respondents whether, based on their experiences, they would buy a product in a different category from the same brand. We also gauged how eager the respondents were to recommend products from a brand to friends and relatives, and whether the respondents generally spoke positively or negatively about the brand.

Quality: Questions around reliability, design, innovation and features were grouped under this category. Since quality is of paramount importance, this category was given a weight of 20 in the overall trust index.

Motherboards



If the last year had to be named after one product category, it would have to be called the year of the Motherboard. Why? Simply put, there were so many new chipsets released that it seemed like through the year we've just literally been testing motherboards and nothing else. Starting from the H67 and P67 Sandybridge series boards. To have the best features of these boards Intel released Z68. The new chipset had features such as Smart Response which allows you to use an SSD as a cache memory for your applications.

In the AMD universe two new chipsets came out: the A75 and 990FX chipsets. The latter was for the Bulldozer FX series processors whereas the A75 chipset was meant for the Llano line of fusion APU processors. These boards utilise the on board graphics of AMD's fusion processors and gave decent entry level gaming performance. For all these chipsets, vendors such as ASRock, ASUS, Gigabyte, Biostar and many more came out with offerings with their own little twists and tweaks. UEFI Bios was one of the main differentiators between offerings. Also form factors were a factor by which brands enticed consumers. Some brands such

ASUS
Reaching out to the tech power user community worked for ASUS making it the most trusted brand in motherboards



as ZOTAC had Mini-ITX boards which housing processors like Core i7 2600K gave performance comparable to Micro ATX and ATX boards.

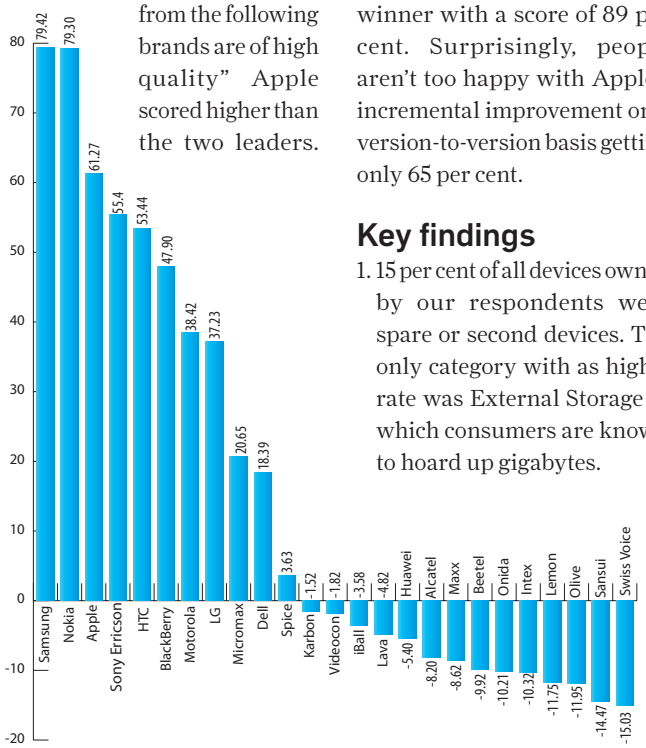
Coming to the results of our survey, ASUS again topped our Trust Index but this time with a lesser margin than what it beat others in GPUs. ASUS got a score of 79.49 which was closely followed by Intel with 76.22. The fact that Intel went past Gigabyte was a little surprising because when it comes to motherboards, the two Taiwanese giants – Asus and Gigabyte – are considered to be dominating forces. Gigabyte did come in third but with a score of 64.25. Let's look at some interesting inferences that can be made from the results of the survey.

Key Findings:

1. In terms of ownership the top three brands together make up a staggering 87.75 per cent of the marketshare (amongst our respondents).
2. While 95.6 percent of the people had heard of ASUS making it the top brand in terms of aided recall, a mere 17.8 percent had heard of Jetway, which brought up the rear in this category.
3. As for availability Intel ruled the roost. This figures as any assembler or local component shop stocks Intel boards. Intel boards are stocked because of the brand name and as a result consumers asking for it.

Mobile Phones

The mobile space has been and will continue to be the most action packed product category in the market. In 2011, the cell phones landscape changed even more than what we saw in the previous year. With many more new entrants in the entry level segment, the breadth of the market increased significantly too this year. Never have so many models, so many operating systems and so many players existed at the same time. About 13 percent of our respondents have purchased or plan to purchase a phone in the period of a year. This is the highest churn rate recorded for any category. Upping last year's progress manifold specifications too went through the roof and Android became the weapon of choice. Players such as Samsung that piggy-backed on the rising popularity of the OS did well. So well in fact that for the first time Nokia's dominance in this Icons of Trust category has been finally broken. Samsung emerged the overall winner barely inching ahead of Nokia by a mere 0.12 percent in our Trust Index. In terms of reliability Samsung scored the highest score (83.75 percent) and hence it's no surprise that the brand emerged as the most trusted mobile phone brand of 2011. As expected Apple came third in the overall Trust Index. What is interesting to note is that in most perception based questions such as, "Mobile Phones from the following brands are of high quality" Apple scored higher than the two leaders.



The number of responses for such questions was disproportionately higher than the number of iPhones owned by our survey group. Hence indicating perception rather than knowledge based on purchase or usage. Apple fell behind the leaders when it came to questions about after sales support and availability. When asked which brands are constantly improving as expected Nokia received a score of 44 percent but what's surprising is that Samsung was the runaway winner with a score of 89 per cent. Surprisingly, people aren't too happy with Apple's incremental improvement on a version-to-version basis getting only 65 per cent.

Key findings

1. 15 per cent of all devices owned by our respondents were spare or second devices. The only category with as high a rate was External Storage in which consumers are known to hoard up gigabytes.
2. When it came to aided recall, exactly 98.15 percent of the respondents had heard of Nokia and Samsung. These were trailed by Apple and Sony Ericsson at 95.14 and 93.52 percent respectively.
3. As compared to last year HTC climbed one place, upsetting Blackberry from the number five spot on our Trust Index. The slew of Android based releases in the mid to high end segment seems to have worked out for HTC.
4. Nearly half the respondents (49.07 per cent) still own a Nokia phone, while Samsung came in second with 32 per cent. Going by the trend for the erstwhile market leader, it seems very likely Nokia will continue to slip in its share. Unless of course the brand makes a complete turnaround with WP7 phones.
5. Brands beyond the top 11 got a negative score. These were mostly brands that are into entry-level phones. Spice and Videocon were the two Indian brands that got a positive score, but just barely.

SAMSUNG
For the first time Nokia's dominance in this Icons of Trust category has been finally broken. But just barely

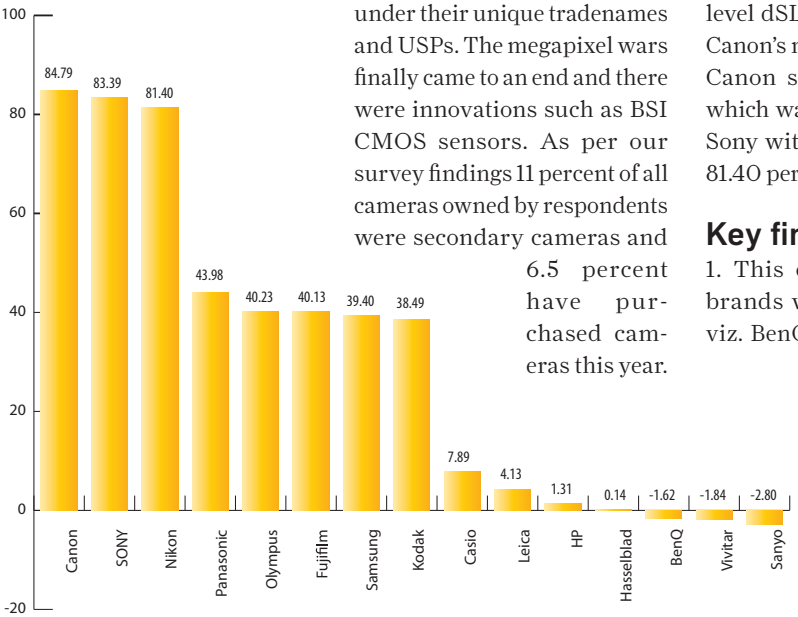


Digital Cameras

CANON
Canon emerged at the top of our Trust Index, trumping last year's winner Sony, which got pushed to second place.



They say a picture is worth a thousand words. And going by the tremendous growth seen in this segment, consumers today seem to fully agree with the adage. A category that usually sees action in the festive seasons, this space saw some interesting events this year. Features such as GPS, Full HD video recording, touchscreens became mainstream in point and shoots. Compact system cameras, mirroless compacts, and micro-fourthirds were released by many brands under their unique tradenames and USPs. The megapixel wars finally came to an end and there were innovations such as BSI CMOS sensors. As per our survey findings 11 percent of all cameras owned by respondents were secondary cameras and 6.5 percent have purchased cameras this year.



So which brand does India trust for preserving precious memories? Canon emerged at the top of our Trust Index, upsetting last year's winner Sony, which got pushed to second place. It's most likely that the increase in hobby photography with the use of entry-level dSLRs is responsible for Canon's meteoric rise this year. Canon scored 84.79 percent which was closely followed by Sony with 83.38 and Nikon at 81.40 per cent.

Key findings:

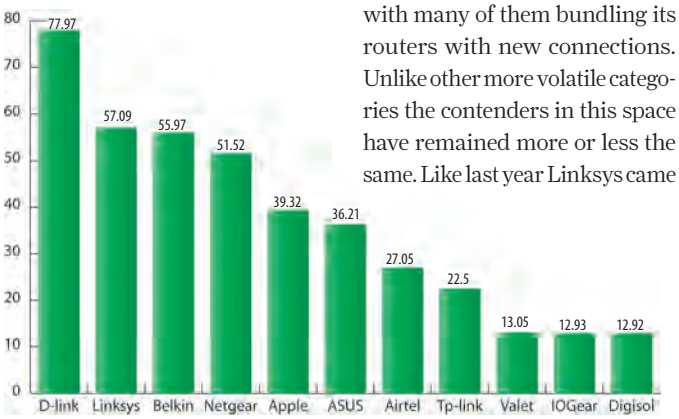
1. This category had fewer brands with negative scores viz. BenQ, Vivitar and Sanyo. Brands such as Vivitar, Hasselblad, and Leica scored low, however internationally they are favourites in the enthusiast segment.
2. Until last year both Canon and Sony were perceived to be technology ahead of the competition. This year dark horse Nikon zoomed ahead a 92 per cent score in this department.
3. The first thing that consumers think of when they hear Camera is Canon. For aided recall Nikon was ahead with a tie between Canon and Sony.
4. While the top three – Cannon (84.79 %), Sony(83.39%) and Nikon (81.40%) – were barely a point apart on our Trust Index, the number four contender, Panasonic was way behind with 43.98 %.
5. Sony was way ahead of the others as far as style and design were concerned scoring a whopping 93.6 percent.

Networking

D-LINK
D-Link is the most trusted brand in networking and with a sore of 77.97 it is way ahead of competition.



With Wi-Fi routers emerging as the easiest way to share an internet connection the networking category has seen tremendous growth. This year's winner was D-Link with a score of 77.97 percent on our trust index. D-Link routers enjoy decent off take thanks to the arrangements with ISPs with many of them bundling its routers with new connections. Unlike other more volatile categories the contenders in this space have remained more or less the same. Like last year Linksys came in second with a score of 57.09 percent. The only difference was that last year the gap was just 4 percent. This year however, the gap widened significantly.



Key findings:

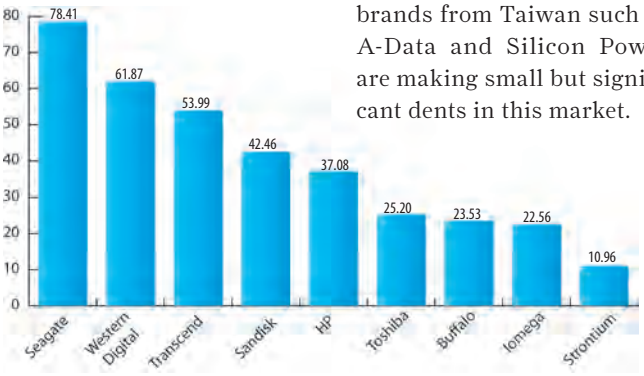
1. A surprising change was Belkin managing to dislodge Netgear from the third spot.
2. A new brand, Digisol made its debut this year at the modest spot of 11 effectively bringing up the rear with a score of 13 percent.
3. Top of mind recall was an area with interesting results. D-Link was of course the most recalled brand with 90 percent people easily remembering it. However the second most remembered brand was Netgear which features fourth on the overall Trust Index. Linksys was the fourth most remembered while its position in the overall trust index was two.

External Storage

SEAGATE
Seagate emerged as the most trusted brand. But what surprised us was the lead it had over WD



With the explosion of downloadable media (a.k.a piracy), the external drive market has been growing at an alarmingly high rate just to keep up with the terabytes of content data hoarders now have access to. The category had the highest percentage of multiple devices owned by individual respondents. About 22 per cent of all devices were secondary devices. A small fraction of the audience could even be certified storage junkies owning as many as six different brands of storage devices.



A lot happened during the year: those mammoths that required external power fell out of fashion and high capacity hard drives (1 TB plus) became even more portable, brands went for rugged and stylish designs, and there emerged newer technologies. We're talking about USB 3.0 becoming mainstream. The new standard has a theoretical transfer rate of 5 Gbps as opposed to the theoretical speeds of 480 Mbps offered by USB 2.0.

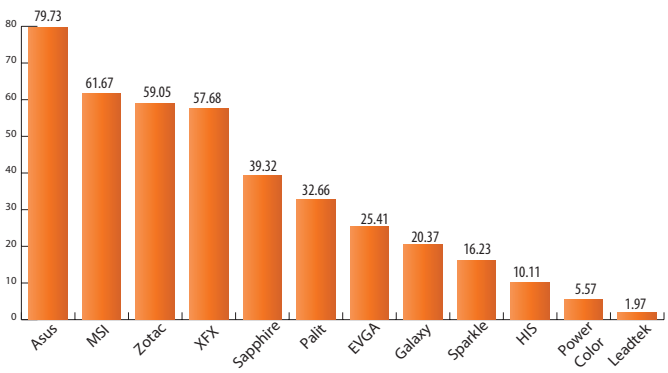
Although the actual hard drives within the stylish cases are manufactured by only a handful of players, such as WD, Seagate and Samsung, the external had drive market has a wide variety of names. Many brands from Taiwan such as A-Data and Silicon Power are making small but significant dents in this market. So despite all the breadth we knew the battle would only be between Western Digital and Seagate. Once we tabulated scores, ran our calculations, Seagate emerged as the most trusted brand for external storage. But what surprised us was the lead it had over WD. Seagate scored 78.37 percent while Western Digital came in a distant second at 62.18 percent.

Key findings:

1. Some brand names such as Freeagent from Seagate were more popular amongst respondents with a few people responding with the brand name instead of the companies associated with the brand.
2. A surprising entry at the number five spot on our Trust Index was HP. Though HP drives may not be commonly purchased over the counter, their market penetration seems to be pretty high (about 6 percent), perhaps owing to bundled deals with their other products.
3. Close to half the respondents (47.75 percent) owned Seagate drives followed by WD (15.73 per cent) and Transcend (15.73 percent).
4. The least known brand amongst the respondents was Strontium. It scored the lowest on our aided recall question and respondents consistently chose the "nothing to say" option for this brand on all questions.
5. In most of the parameters such as Loyalty, Credibility, Awareness etc the scores mirrored the ranking order of brands on the Trust Index except for Availability. In terms of availability Transcend came in second after Seagate.
6. Votes for the Satisfaction parameter significantly contributed to the scores of the two top runners thanks to their strong RMA support and warranty periods. However, a recent update states that both Seagate and WD have slashed their warranties to one and two years instead of the previous period of three and five year periods.

GPUs

Since time immemorial, the GPU arena has always been polarised into two factions. The two chipset designers – AMD and NVIDIA – wage war on each other for market supremacy while vendors such as ASUS, MSI, ZOTAC etc can be thought of as the facilitators of this battle. This has been the playingfield for the longest time and the rules change very little every year. The chip makers try to outdo each other on a couple of parameters namely, price and speed. Ultimately the card that produces



the best frame rates for the least amount of money emerges the winner. Yes there is fanboyism but as the greatest generals of war will tell you, even the fiercest loyalty is fickle. Brands try to take the reference designs to newer heights by implementing their own tweaks. These may be higher clock speeds (known as factory overclocked cards), better coolers and PCB materials. This time around, general opinion is that NVIDIA pwned AMD in price ranges except when it came to dual core flagship chipsets from either of the vendors. At that pinnacle of performance, the winner was undecided.

This war between the chipset makers is waged in the background. To the consumer what comes next and what is perhaps a more important decision is which vendor to choose. Here too there are perceptions and fixed loyalties. Connoisseurs of GPUs, who regularly go in for cards (once every year in some cases) have intimate knowledge (from experience) about which brand has better service, which one has desired models easily available etc.

This year the most trusted brand for GPUs was ASUS garnering a score of 79.73 per cent. ASUS has been giving a firm push to both their marketing and distribution side throughout the year. Unlike other brands, ASUS specifically targets enthusiasts through forums and other power user groups online. Besides, their presence in other categories such as Motherboards and Notebooks helps garner more trust and recall. The leader on our Trust Index was followed by MSI but with a distant score of 61.67 per cent while Zotac came in at the third spot with 59.05 per cent.

Key findings:

When asked the first brand that comes to mind when thinking of GPUs, our respondents had some interesting answers. 21.8 percent of the respondents thought of NVIDIA and not a particular vendor brand. Correspondingly AMD garnered only 5.27 per cent recall.

1. ASUS, MSI, and ZOTAC (in that order) are the leaders when it comes to after sales service. The three brands seem to have their customer care, RMA logistics etc properly in place.

2.XFX is the second most purchased brand and it isn't very far behind ASUS. 17.76 percent of our respondents owned ASUS cards while 15.79 percent owned XFX cards.

3.HIS and Leadtek had the least amount of aided recall. With only 3.75 and 3.06 per cent of the people having heard of them.

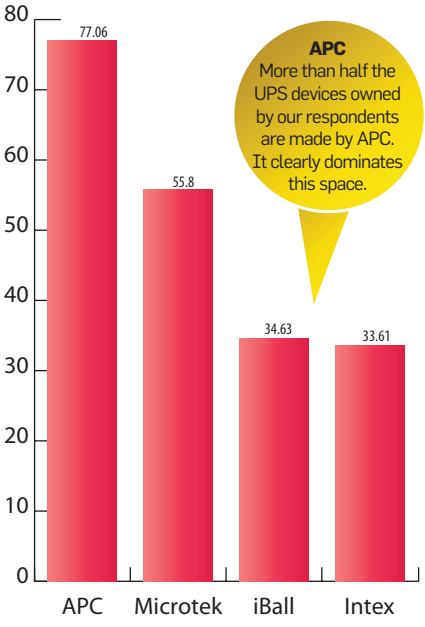
ASUS
This year the most trusted brand for GPUs was ASUS garnering a score of 79.73 per cent.



UPS

Frequent power cuts, load shedding, and voltage fluctuations are things we curse but they are conducive for the UPS business. According to most reports volume-wise, the industry grew by 20 per cent over the previous year. The most common type of UPS that we see is the online type of UPS. Apart from individual consumers, these devices are in demand at educational institutions, government offices and corporate establishment.

In a home setup popular brands include APC, Microtek, iBall, Intex, Numeric etc. But which one is the most trusted? As per our Icons of Trust survey APC emerged at the top with 77.06 per cent score on our Trust Index. An interesting point to note is that the margin by which the number one brand is ahead of the second is the highest compared to any category. The second spot on the Trust Index was occupied by Microtek with a score of 55.8. That's a difference of 22 points. From the third spot to the seventh on the trust index, the scores were fairly evenly distributed i.e between 29 and 35.





Key findings:

More than half the UPS devices owned by our respondents are from APC. Microtek had a market share of 16.67 percent while Intex had a share of 8.33 percent.

When it came to aided brand recall the results were a bit surprising. More people had heard of Microtek, the second runner up as compared to APC the winner. 79.31 per cent people remembered APC when prompted while 81.03 percent recalled Microtek.

The same trend was noticed when it came to availability. More number of people felt that Microtek was more easily available than APC, both in terms of brand presence in shops and the availability of desired models.

(Visit www.thinkdigit.com/iot2012 for more details)

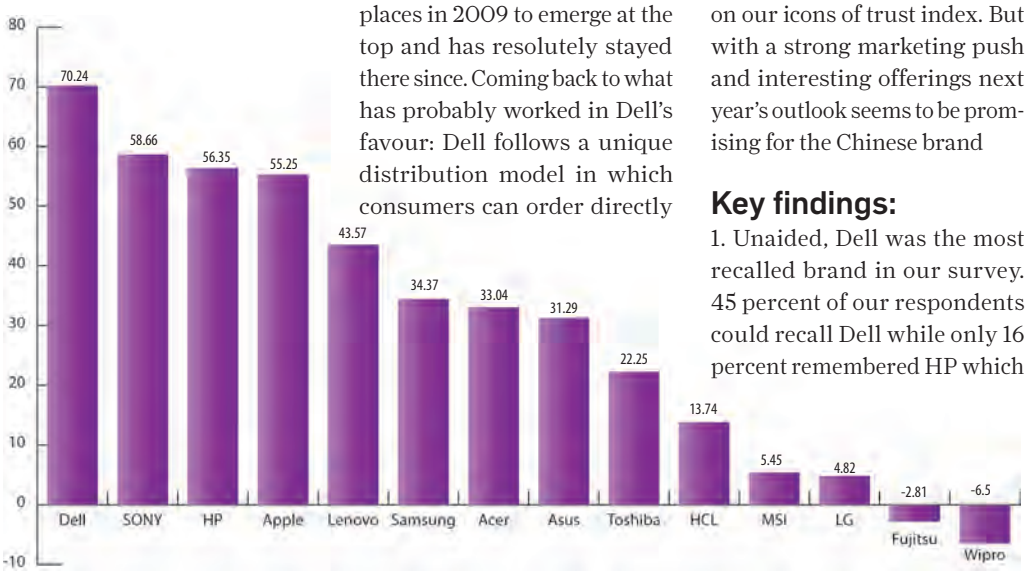
Laptops



Way back in 2008 when global Laptop sales first crossed desktop sales, the new era of mobile computing was ushered in. This year too there was a lot of action in this space. Second generation Sandy Bridge processors ensured that high performance notebooks didn't burn a hole in your pocket. Most of the components starting from the processors have now started to become even more power efficient than what we have seen before. Since portability is the way to go and battery technology is not innovating at the same rate, the only option was to make existing components more power efficient.

Consumers this year were spoilt for choice. Through the year we saw almost every notebook line from each brand such as IdeaPad (Lenovo), Vostro (Dell), Timeline X(Acer), Pavillion(HP), VAIO(Sony) refreshed with better designs. Another trend is OEMs offering better bundled software rather than bloat and junk that we had seen so far. Vendors have started giving better software such as webcam utilities and cloud backups suites etc. The thin and light form factor seemed to have found more traction towards the end of the year. Going by this trend Ultrabooks which are slated to flood the markets this year, will determine the outcome of next year's IOT. More in our cover story.

This year's most trusted brand was as expected was Dell with a score of 70.24. A lot of things have worked in Dell's favour, a brand that as recently as 2008 was languishing at the number 5 spot. It gained five places in 2009 to emerge at the top and has resolutely stayed there since. Coming back to what has probably worked in Dell's favour: Dell follows a unique distribution model in which consumers can order directly from the vendor, effectively cutting out the middle man. It also allows customization of components and there's a laptop at every price point on offer.



The second place was claimed by Sony followed closely by HP and Apple. Sony gained one place since the previous Icons of Trust while HP lost one place slipping to number three from the number two spot. Lenovo, once a winner of Icons of Trust dropped down to the fifth spot on our icons of trust index. But with a strong marketing push and interesting offerings next year's outlook seems to be promising for the Chinese brand

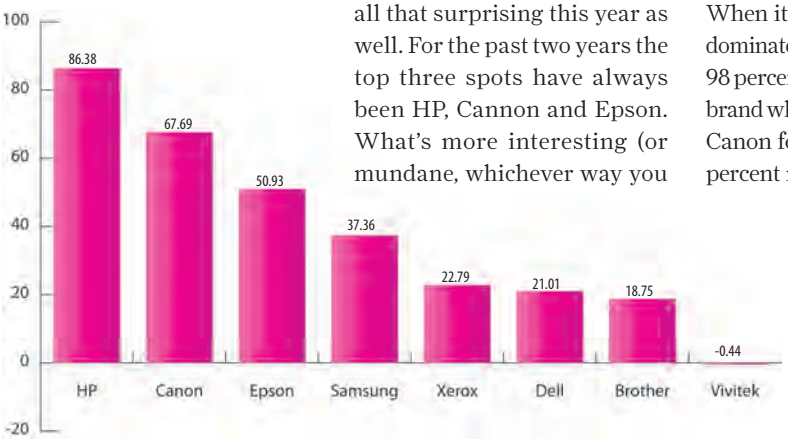
Key findings:

1. Unaided, Dell was the most recalled brand in our survey. 45 percent of our respondents could recall Dell while only 16 percent remembered HP which came in second. Apple and Sony had equal recall value – 11.5 percent.
2. Just nine percent of all those surveyed own two or more laptops. One of the lowest for any category.
3. When it came to perceptions of quality Apple emerged with the highest scores. It scored 85 percent on our five point weighted average scale while Dell scored 78 percent
4. Sony is perceived to be almost as stylish as Apple, attaining a score of 88.4 per cent in this department which is only slightly behind Apple with a score of 89.8 per cent.
5. HP scored slightly higher than Dell when it came to the brand's presence in stores. However in terms of availability of desired models it lagged behind by a significant margin. On specific availability Dell scored 77 per cent while HP scored 67 per cent.
6. In terms of Brand Loyalty maximum number of people strongly felt that they would go in for another product from Sony.

Printers

Printers morphed from plainjane printing devices to MFDs or multifunctional devices that do much more than just print. The next step in the evolution of MFDs was witnessed this year by way of technological advancements and feature upgrades such as cloud printing etc that were implemented by some brands. Other than that manufacturers if printing solutions tried to bring down the overall costs per print.

Our survey results were not all that surprising this year as well. For the past two years the top three spots have always been HP, Cannon and Epson. What's more interesting (or mundane, whichever way you look at it) is that even the order hasn't changed. HP came out on top of the trust index with a score of 86.38 followed by Canon at 67.69. The gap certainly has widened between the two leaders from last year. Reclaiming its third spot this year again was Epson with a score of 53.97 percent.



Key findings:

When it came to awareness HP dominated top of mind recall with 98 percent people thinking of the brand when asked about printers. Canon followed closely with 93 percent recall. Epson was fairly remembered with just under 90 percent.

In ownership as well HP was at the top with 70 percent of our respondents possessing HP printers.

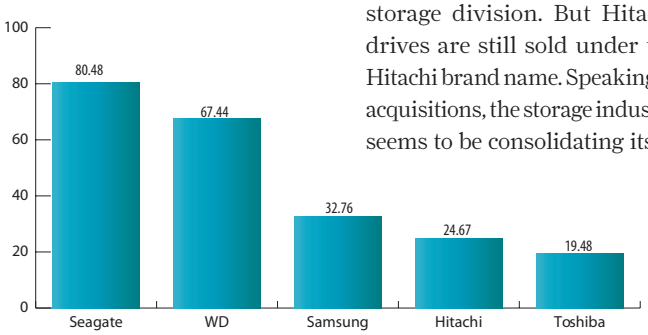
HP
Though HP may not be doing so well in other categories like Laptops, in Printers it is undisputedly the most trusted brand.



A new entrant debuted in our trust index this year. The surprise entry by Dell was at the number five spot. Brother on the other hand got pushed down one spot to the sixth place.

Internal Hard Drives

Right from the start of the year manufacturers tried to capture the market by upping capacity. All three major manufacturers viz. Western Digital, Hitachi and Seagate now have their 3TB versions. Each of the brands came up with their own workarounds for achieving such capacities. With the WD drives, you needed a host bus adapter to use the full 3TB capacity. Also a term that was heard quite often was advanced 4K format, which basically combines eight 512-byte sectors to overcome the 2.19TB barrier that was present in previous generation hard drives. Seagate achieved 3TB drive using the 512-byte sector to make it compatible with older systems running windows XP. As far as the internal storage (mechanical hard drives only) industry goes, there are only two titans remaining now – Western Digital and Seagate, thanks to Western Digital's acquisition of Hitachi storage division. But Hitachi drives are still sold under the Hitachi brand name. Speaking of acquisitions, the storage industry seems to be consolidating itself even further. Seagate recently acquired Samsung's Hard Disk Drive division which was primarily into laptop HDDs.



Coming to the results of our Icons of Trust survey in this category, it pretty much mirrored the findings from the External Drives category. Seagate was the clear winner with a score of 80.48 followed by Western Digital with 67.44. Since the space does not have too many players there were only three other brands featured in the trust index viz. Samsung, which came third with 32.76, followed by Hitachi with 24.67 and finally Toshiba with 19.48.

Key Findings

1. As expected Seagate and WD own the lion's share of the drives owned by our respondents. Close to 50 percent of the drives were Seagate while about 30 percent were WD. On the contrary, totally about 5 percent of the drives were reportedly from brands such as Silicon Power, Imation etc. Most likely SSDs.

2. Based on their experience, owners of WD drives seemed slightly happier with their purchases. 81.20 percent of those surveyed said they would purchase products of a different category from the brand. While in the case of Seagate it was 79.50 percent.

(Visit www.thinkdigit.com/iot2012 for other categories)

SEAGATE
Seagate was the clear winner with a score of 80.48 followed by Western Digital with 67.44





Jayesh Shinde
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New year, new expectations. From the round-up of trends we've listed, it looks like an exciting one for the technology enthusiast. Plenty of new technology to look forward to, along with it plenty of amazing products and services to ogle at. Smartphones with flexible displays, over 30 per cent of us susceptible to online malware attacks, wafer-thin laptops with all-day battery life, the rise of e-commerce in India and our increasing dependence on cloud services like never before. Here are some of the biggest trends we'll witness in the tech world this year

Wafer thin laptops with 8 hours of battery life

It isn't science fiction, it's science fact!

Did you always wish your laptop to be a tad lighter, a bit faster, its battery to last a few hours more? The tech gods are surely smiling down on you, and the rest of us demanding lot, for there's a new kid on the block that will fight tablets for all the tech headlines in 2012. Ultrabooks, essentially thin-and-light laptops with improved performance chops, will go mainstream this year.

The world beyond netbooks

When the mini-laptop PC captured popular imagination, back in 2007, Intel had only coined the word 'netbook' which got attached to the early mini-notebooks launched subsequently thereafter. Aimed at the entry-level of a price-sensitive notebook market, netbooks were never meant to be processing powerhouses; they never really gave traditional 13-inch, 14-inch laptops a run for their money. Netbooks were a huge hit for the past 3-4 years mainly because of their inexpensiveness and thin-n-light form factor. These two ingredients are central among the new breed of thin, powerful ultrabook laptops that are going to launch left, right and centre this coming year.

The Ultrabook cometh

The industry is betting big on the ultrabooks to take off. According to an Intel prediction, by the end of 2012, 40 per cent of the notebook market will comprise of ultrabooks. That's just astonishing, if true, as ultrabooks only started to appear late last year (we reviewed the Acer Aspire S3 back in November). For Intel to project such a figure means they have all the prominent OEMs on board for this to happen. And not surprisingly, some of the major players in the notebook market have either launched or are in the process of launching their respective ultrabook line. We know ASUS, Acer, Lenovo and Samsung have already launched their ultrabook offerings in the Indian market. We expect brands like Dell, HP, Sony, MSI, Fujitsu, Toshiba and others to launch their branded ultrabooks very soon on Indian shores, too.

More processing chops, less power consumption

While most of the ultrabooks launched early this year will continue to sport existing Sandy Bridge chips, new hardware platform will take processing and computing to the next level. Intel's 22nm sophistication of Sandy Bridge, codenamed Ivy Bridge, will finally start shipping towards the end of this year. The most path-breaking difference it will provide compared to existing Sandy Bridge processors is its innovative Tri-gate transistor design — it gives the same performance as the current chips having 2D transistors at a 50 per cent lower power. The upcoming Ivy Bridge chips overall push existing Intel CPU performance up by 20 per cent and onboard graphics output is higher by a whopping 30 per cent. All things said and done, despite any major breakthroughs in Li-ion batteries, we expect the average thin-n-light laptop (or ultrabooks) launched this year to last well over 5 hours, some may even touch the coveted 8-hour mark hailed by early netbooks. Imagine having a thin 13-inch ultraportable laptop that doesn't burn a hole through your pocket, performs as well as any mainstream 15-inch laptop and lasts for the better part of your work day. Now wouldn't that be something to cheer about?



> "Due to the rapidly growing amounts of data being produced, management and easy accessibility of data from anywhere will become crucial for private and professional users."
>
> Khalid Wani, Sales Director, Western Digital

Intel, AMD roadmap

Not just this, the next generation of Intel Atom chips dubbed Cedar Trail should start shipping early this year, boosting netbook performance. Equipped with Cedar Trail Atom chips, N2800 and N2600, netbooks launching this year will better handle 1080p video, HDMI and DisplayPort out, and also an onboard GPU with DirectX 10.1 support. AMD has its own few thin-n-light platform updates planned around the same time. The next level of Brazos chips will arrive towards the end of this year that will further open up the thin-n-light laptop segment. Krishna is scheduled to replace the existing AMD Fusion "Zacate" APU, while Wichita is the next level of "Ontario" APUs for use in laptops and netbook-like devices. AMD APU-based thin-n-light laptops or ultrabook competitors may sport AMD Radeon HD 7000 graphics.

PMP IS DEAD

With the advent of smartphones, which couple up as efficient media players, the PMP segment is almost at the end of the road. Let's be honest, the best PMP in our books, the Apple iPod Touch, was released over a year ago. Worthy contenders are fast disappearing. Our advise: hold on to your beloved PMP from the pre-smartphone era, for come the end of this year, they will (in all probability) be relegated to history.

The cloud is the limit, bandwidth no bar

We see the silver lining, and it is approaching us, as we glide

We have, not very long ago, been using email accounts that restricted us to 5MB of storage. Yes, 5 MB! Back then, 20 MB seemed like a lot. Wow, we didn't have to delete our emails anymore. Then back in 2004, Gmail stepped in and life wasn't the same. We're talking GBs now. Soon we found ourselves trusting our email service. We were being pampered all this while, because we were getting this for free.

It all began for free!

Edit photos on Picasa, documents and spreadsheets on Google Docs – you name it, we were using it. Thanks to Google, we began accepting our data in alien hands. Probably the reason was we didn't view Google as alien anyway. What followed was a slew of services that claimed to do everything on the 'Cloud'.

Today, we've begun to adapt to services such as Dropbox. A no-nonsense service, you just install it on your computer and access your files from any remote system. It allows you to sync in real time. These are GBs of space with real time sync for free! Even Microsoft's Live SkyDrive and Mesh services allow you to sync upto 5GB of data in real time. Why would anyone need flash drives anymore? With smoother integration of MS Excel, Word and PowerPoint, you wouldn't need Office installed on your system.

We would soon be willing to pay!

But that's about it. What better could we look forward to? What would be innovative in this space? Well in our daily use of technology, we have been witnessing the Cloud.

IPV4 NO MORE

All through the Internet's history, IPv4 and its 32-bit address scheme has largely been the de facto standard to uniquely identify any device on the Web. Later this year, the Internet and connected world is set to officially run out of IPv4 addresses, sparking a mass migration to IPv6 addresses. In India, ISPs and telecom providers are expected to offer only IPv6 addresses after March 2012.

Just that we didn't realise it. BlackBerry Protect is the simplest example. All your data is securely backed up as per your schedule. In case you lose or change your BlackBerry device, all you need to do is register the device and your data is with you at the snap of your fingers. Look at Ubuntu Cloud One. If you move across systems at work and home, you still have access to your personal files! A free OS, with free backup. Isn't that a good deal? Apple lets you back up your data on the cloud too. You'd definitely have heard of iCloud. All your data seamlessly synced on the cloud, accessible from a Mac, Macbook, iPad, iPod or iPhone!



> **"Consumers will spend more time online, and demand for far better online experiences and their online life will become far more valuable to advertisers, marketers and brands."**
>
> Naresh Gupta, Sr Vice President, Print & Publishing Business Unit & Managing Director, Adobe India

Last month, openSUSE had announced 12.1 which has seamless mirall and ownCloud integration. What's unique about ownCloud is that your data is still under your control. You can host your data on "your" computer and access it from a closed/private network of computers. The concept is not new, but the implementation is innovative. With openSUSE 12.1, you can access your personal files at work, continue working on office assignments, without having to host it on Novell's servers.

It wouldn't be fair to mention cloud services and not talk about Amazon. It is said that Apple's iCloud services will be based on Amazon's AWS and Microsoft's Azure platform. With a variety of platforms and technologies available to base such active sync and data hosting services, a new type of service known as Gladinet is emerging.

Gladinet Cloud desktop is an innovative concept, where depending on your usage scenario, you could either choose to use Gladinet's Cloud storage space, or even Amazon's S3, Microsoft's Skydrive, Box.net, your personal server with FTP or several other platforms out there to maintain your data. Gladinet sits on top of these platforms and manages your files for you.

Also, Adobe's Creative Cloud service announced at Max 2011 would go live in the first half of 2012. Soon, you could work on your computer, and continue working on it from your tablet or mobile device using Adobe's Creative Cloud service.

Understandably, you need stable internet infrastructure. Hopefully, consumer demand would change the scenario with ISPs bucking up and removing last mile hiccups. Soon, enterprises would be nudging service providers to push commercial software on to the cloud and charge consumers for subscription models to curb piracy. In the end, we should be pleased with larger storage spaces on the cloud, unlimited data use plans and dependable infrastructures.

Nash David

Mobile OS Deathmatch: Google vs Apple vs Microsoft

It is literally the war of the worlds, but who will win it all?

First things first, Google's Android (since 2007), Apple's iOS (since 2008) and Microsoft's Windows Phone (successor to Windows Mobile since 2010) have been available to mobile consumers for only a few handful years now. Sure there's Nokia's Symbian, Samsung's BADA and RIM's Blackberry OS, but waning developer interest and lack of consumer support will affect their growth in the coming years. Yet, in this short but decisive period, Google, Apple and Microsoft have emerged as the strongest contenders — they currently enjoy a 69 per cent global mobile OS market share.

Android is king!

In December 2010, a total of 3 lakh Android devices (phones, tablets, etc.) were getting activated on a daily basis. That figure jumped to 5 lakh daily Android activations by June 2011, according to Android boss Andy Rubin. By December 2011, a staggering 7 lakh Android devices were getting activated worldwide on a daily basis, based on several industry estimates. At the end of September 2011, Gartner claimed Google's Android enjoyed 52.5 per cent of the global mobile OS market share, the single dominant smartphone OS on the planet! For competitors looking for a silver lining on the Android horizon, there seems no end in sight.

High on Google's agenda for 2012 is to quickly roll out Android 4.0 or Ice Cream Sandwich (ICS) as its tastefully named on a spiffy new army of fresh Android phones and tablets. ICS combines Android's variant flavours for smartphones and tablets into one (at least for now). Launched in October last year, ICS' source code was only available in November, preceding the launch of Samsung's Galaxy Nexus smartphone—Google and Samsung's current flagship phone. Towards the middle of 2012, we expect to see a developer preview of Jelly Bean or Android 5.0, with commercial availability possible only towards the end of 2012. There's also a very strong possibility of Samsung Galaxy SIII launching in the coming months. It's a great time to be an Android user.



> "In the coming year we can expect ultrabooks, tablets, and all-in-one PCs to become faster and even more affordable than they are now."
>
> S. Rajendran, Chief Marketing Officer, Acer India

iOS isn't far behind

The sales of Apple's iPhone 4 (and 4S) and iPad tablets have gone through the roof, so it's quite astonishing that Apple's iOS enjoys close to 20 per cent market share on the back of only two products! Apple's a pioneer of the modern mobile ecosystem culture, with iOS being efficiently complemented by Apple's online app store and cloud syncing services to provide customers with a unique user experience. And users using iOS devices is only going to rise later this year.

Apple is set to refresh the iPad tablet as early as March 2012, with a possible iPhone 5 releasing later in the year. Apple TV is also something that's expected to launch later this year. If these aren't big enough reasons, reports have suggested that Apple is looking into "new Macs" to beat off Intel's ultrabook assault. This could mean completely new devices sporting ARM-based processors. Despite losing its founder, mentor and visionary late last year, Apple and iOS seem prepped for a bountiful 2012.

Windows Phone on the rise

There's a feel-good factor surrounding Windows Phone, right now. Everyone is bullish about its potential, and Microsoft seems to have got their act together. According to an IDC Q4 2011 Mobile Developer Report released last month, 28 per cent of developers are 'very interested' in developing apps for Windows Phone, with 48 per cent pointing the favourable attitude towards the Microsoft-Nokia partnership. Microsoft also launched a one-stop store for app downloads earlier last year.

Windows Phone uniquely combines strong elements of work (Microsoft Office) and play (Xbox LIVE) in a fresh new Metro-style tiled interface. Also unlike Google and Android, Microsoft exerts control over OEMs deploying Windows Phone devices. Of devices, expect plenty of action this year. If you wanted to buy a WP7 phone last year but couldn't afford it, this year expect a Windows Phone smartphone available at every affordable price point.

Windows Phone's current build "Mango" 7.5 will upgrade to "Tango" at CES event, while a more comprehensive upgrade, Windows Phone 8 or "Apollo" is expected by June 2012.

USB 2.0 IS OLD

With faster USB 3.0 standard gaining momentum in 2011, witnessed on most PC boards and laptops sold last year, we expect OEMs to finally shut the door on USB 2.0 only ports on motherboards, paving the way for further proliferation of USB 3.0. What happens to users stuck with USB 2.0 devices? Don't worry, USB 3.0 will support charging and connecting of older gadgets.

Smartphones more powerful than netbooks

It's bound to happen. The writing's on the wall...

Ever since Apple launched the iPhone back in 2007, the race was on among competing manufacturers leaving no stone unturned, to clone it. It's absolutely nuts how the mobile phone industry has just exploded over the past 5 years, especially the advent of smartphones. As a result, consumers have never been in a better position to buy just the right smartphone they desire. As smartphone sales continue to rise and enjoy a sizable chunk of the market, the pace of innovation is blazingly fast as different brands try to woo customers, and mobile phones are slowly morphing into devices we could scarcely imagine some time back.

It's all in the cores

Last year saw the first iPhone ever to sport a dual-core processor, the iPhone 4S, and companies like Samsung, LG, and HTC debut the very first dual-core smartphones of their respective fleets — viz. Samsung Galaxy SII, LG Optimus 2X, and HTC Sensation, respectively. During the course of this year, we expect dual-core smartphones to be priced competitively and available at affordable rates. While it's great to have dual-core phones all around, but what about the apps to utilize all that processing power? By all indications, apps that exploit multiple cores and multiple threads will become more mainstream this year. Does that also mean gigantic batteries for 4-inch and larger-screen-sized smartphones? No, definitely not. ARM's Cortex A15 chip due later this year will roughly be twice as powerful (with a max core clock speed of 2.5 GHz) as the existing Cortex A9 chip, with no word on battery usage. But the lower-end Cortex A7, a successor to the Cortex A8 chip abundant in smartphones right now, will definitely be twice as fast with up to 5x more power efficient than any Cortex A8 chip-based smartphone of today.

Of course, the first quad-core (yes, you read that right, 4 cores!) smartphone is also slated for release later this year, it's the HTC Edge, the first of its kind in the world. It will have four cores clocked at 1.5 GHz each, that's quicker than any commercially available netbook available in the market currently. This is possible because the HTC Edge will be based on NVIDIA's Tegra 3 chipset, the next big step in smartphone hardware in 2012. The HTC Edge and others in its mould which are expected to crop up sooner rather than later, will also offer better-than-ever graphics for upcoming smartphones and devices sporting a handheld form factor.



> **"GPUs are no longer considered niche, and over the last year, our mobile phones have emerged as our "personal" computers in the truest sense of the term."**
>
> -- Vishal Dhupar, MD, NVIDIA (South Asia)

Industry giants want a piece of the action

What's more interesting is that brands and manufacturers who aren't traditionally associated with the mobile phone industry are also trying to make a dent in the market. Take Intel for example, a chip maker that's only ever traditionally associated with the PCs, it will now vie for a major stake in the smartphone market starting this year. If you're wondering how, the answer is simple: Intel will release two distinct chips later in the year -- 32nm Medfield (Atom variant) for smartphones and Clover Trail for tablets. With Medfield, Intel hopes to make a significant dent into the ARM-dominant smartphone market, while Clover Trail aims to take on NVIDIA's Tegra 3 and Apple's new tablet chipset expected later this year.

Even Amazon, who released their first 7-inch Android tablet last year, is reportedly working with Foxconn to unveil its very first smartphone. Specs are rumoured that the yet-unnamed Amazon phone will have a 4-inch display and an 8MP camera. This is definitely a sign than Amazon is expanding its business to upset the balance of power in the mobile industry. If that wasn't surprising enough, listen to this: Facebook is also working on a secret phone project. Yes, you read it right, the social networking giant is working closely with HTC to release a Facebook-branded handset early this year. Codenamed Buffy, the Facebook phone will run on a homebrew version of Android and support developer apps running on HTML5.

Soon every Tom, Dick and Harry will tout a smartphone, leading us to believe the devices will soon leave existing netbooks behind in the performance race.

DEATH OF MUSIC CD

With the rise of online music stores like iTunes and related music services, major music labels are mulling over retiring compact discs for selling albums.

Although they declined to comment, Sony, EMI, and Universal are seriously contemplating cutting down or stop producing music CDs in general—whatever stocks they do produce will be limited edition for select artists sold through Amazon alone. This may happen later this year.

Tablets will drive out netbooks, become more mainstream

In a matter of speaking, tablet sales will hit the stratosphere!

In today's day and age, tablets aren't exactly a dime a dozen. They're easy to get, but they aren't exactly cheap or inexpensive, with most of the good tablets still a bit too expensive. Of course, the smartphone industry has eclipsed everything in the consumer electronics domain, and cast a huge shadow on other technology products. But with tablets being a natural extension of smartphones, expect a bombardment of tablets this year that will flood the markets with enough and more brands and models. This abundance of products to choose from will eventually help bring down costs across the board, right from the most inexpensive tablet to the most expensive one. This year is a good time to be a tablet enthusiast, here's why.

The iPad effect

We all know how Apple launched the original iPad back in 2010, which, in many ways, spurred on the tablet industry to accelerate and grow. And just like netbooks, between 2007 and 2009, tablets have captured popular imagination in just a couple of years, and analysts only expect the trend to reach new heights this year. According to investment bank JP Morgan, the iPad's share in the global tablet pie will reduce from a whopping 70.9 per cent in 2011 to a still impressive 62.8 per cent by the end of 2012. JP Morgan also believes that until a Windows 8 tablet debuts, there won't be any serious competitors to the iPad. As far as netbooks go, tablet sales eclipsed netbook sales for the first time last year, and the trend isn't expected to reverse any time soon.

FLASH IS DEAD

Yes, Adobe has officially announced the death of Flash on all mobile devices with immediate effect – Flash for desktop PCs is still alive and well, though. Instead of Flash, Adobe will concentrate on promoting HTML5 technology among mobile app developers. HTML5 will ultimately take over Flash's functionality.

With Apple gearing up for the launch of iPad 3, god only knows what new, innovative features it will bring to the table. And as has always been the case, every other manufacturer will try to ape the Apple tablet, and some may actually succeed in doing so this time around.



Next-gen hardware: Tegra 3, Windows 8 tablets

The best tablets releasing this year will undoubtedly have quad-core processors, almost all of them based on NVIDIA's Tegra 3 chipset. Apart from improved performance, Tegra 3 offers some cool features, prime among which is its sensible use of battery life – apart from four high performance cores, the chip deploys a fifth low-performance core for non-intensive tasks which actually helps extend the tablet's battery life (read more on Tegra 3: bit.ly/vK8WNy). Among the first tablets to sport quad-core processors this year are the ASUS Transformer Prime. The upcoming iPad 3's A6 processor is expected to have four cores as well.

> **"In 2012 and beyond, we foresee the consumers fuelling demand and appreciation for security software that secures multiple devices and information across multiple platforms, while making it easy for the consumer to manage."**
>
> David Hall, Regional Consumer Product Marketing Manager, Asia Pacific, Symantec

Windows 8 tablets are also scheduled for launch towards the second half of 2012, and quite a few analysts are betting on Microsoft to give Apple's iPad a good run for its money. Expect Windows 8 tablets from vendors like Dell, Samsung, even Nokia, with the refreshing Metro UI and a new perspective on tablets (apart from Apple and Google). And never underestimate the wave of Android 4.0 or ICS tablets hitting you soon. With so much variety and innovation expected, not to mention the improved hardware and performance chops, tablets are all set to become more than just leisurely companions, or entertainment and media consumption devices.

Low-cost tablets: Aakash and beyond

Just last month, dubbed as the most inexpensive tablet in the world, the low-cost Android 2.2 tablet Aakash went on sale online, and was sold out with DataWind (the manufacturer) receiving close to 30,000 orders of Aakash (priced at ₹2,500) and over 1 million pre-orders for the UbiSlate 7 tablet (Aakash 2) priced at ₹2,999. Even with international success stories like the Amazon Kindle Fire (a US $200 Android tablet), the potential for low-end, price-conscious tablets to launch with older Android builds (Gingerbread or Honeycomb) is quite high.

All hail the app internet, rise of smarter apps

Apps will increasingly become personal windows to the Web

A combination of factors is helping drive the smartphone and tablet industry to ever greater heights. Great hardware alone can't make a successful tablet. An important ingredient of the winning formula is the abundance of apps available for the customer, whether it's an iPad or Android tablet -- just ask the PlayBook guys. A crucial component of the tablet experience is the apps you interact with, be it games, feeds, or any other activity. But there's a significant, almost fundamental change happening in the way these apps function, and going forward they're going to be our gateways to the internet.

The app internet

Our infatuation with apps isn't a "bubble" waiting to explode and crash-land us back to earth in the wake of a global economic slowdown expected this year. Analysts believe we are increasingly altering the manner in which we interact with the internet, and it's no longer with a traditional web browser. More people are accessing the web, utilizing services deployed over a cloud infrastructure through mobile apps. This number is only going to increase in 2012. According to Forrester Research, the app industry is worth US $2.2 billion currently, and as many as 41 per cent of companies are now moving away from Web-based software toward the app internet.

According to an IDC estimate, cloud services will grow four times faster than the industry rate and amount for US $36 billion of global development and deployment of cloud services. Close to 80 per cent of apps to be released this year will have a cloud backbone for providing service to their consumers. With Apple's iTunes and Google's Android Market surpassing their 15 billionth and 10 billionth app download mark, respectively, last year, these two platforms will pretty much spearhead the app internet's outreach to the end user.



Apps get smarter

Just like app internet is set to explode this year, the need for smarter, intelligent apps is an important stepping stone towards that direction. NFC or Near Field Communication will take huge steps towards becoming a mainstream feature on most smartphones this year. In fact, a CNN report mentions that by 2013, one in every five cell phones will be NFC-equipped. Also big on the 2012 agenda is the surge in context-aware apps, which is an extension of location-aware apps that are currently the trend.

> **"The need towards emotional intelligence has also started rising, hence, tablets/smartphones equipped with voice commands or other similar features, wouldn't come as a surprise."**
>
> Rajesh Thadani, Director, Consumer Business, Lenovo India

Context-aware apps, powered by an intelligent cloud infrastructure, could take human machine interaction to the next level. Imagine you're a cricket fan who loves eating hotdogs, and the app in your phone suggesting you a good hotdog joint and of a scheduled match while you're driving around in downtown Auckland, for example. A bevy of social media features embedded within these context-aware apps will help you share and stay connected with your friends. So, the general end user experience from an app will be richer, more enriching in the coming year.

We might also see a Siri-clone later this year, which would be a rather extensive and across-the-board deployment of a smart app. A smart, virtual assistant with intelligent speech recognition for your mobile phone who's aware of who you are, where you are, your likes, dislikes and a lot more—who wouldn't want that?

HTML5 on the rise

And finally HTML5 apps will surge in 2012, finding widespread acceptance among the developer community. HTML5 is the long-awaited magic wand which allows developers to create an app once and have it work everywhere: iOS, Android, Windows Phone, Symbian, Bada, etc. No need of different apps for different platforms. The acceptance of HTML5 apps will also ensure a faster roll-out time for apps, which eventually leads to a faster rate of app development. Here's to an app-filled 2012!

DEATH OF CABLE BOX

That's right, it's already happening, if you didn't know already. Increasingly in Europe and North America, game consoles and Smart TVs are replacing the age-old cable TV box. We all welcome this trend. It removes the hassle of managing an additional device, gives the user a simple experience and it's a cost-effective solution for the cable company. Hopefully, old black boxes will be history soon.

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Atleast 35% of Indian mobile users will click an unsafe link

Global mobile malware business will turn profitable in 2012

While it's all exciting on the smartphone and tablet roadmap all through this year, there's a grim forecast emerging from security watchdogs monitoring malware trends. McAfee, Kaspersky, and other security specialists are unanimous in their prediction that Android smartphones will be the most targeted in 2012 -- 75 million unique malware samples by December 2011, according to McAfee, and most of them targeting Android. With close to 1 million device activations daily, there's no wonder why spammers and scammers are targeting Google's mobile OS.

Another agency specializing in cross-platform security solutions for smartphones, Lookout has even more bad news. SMS pick-pocketing malware like GGTracker and RuFraud will only multiply in number this year, and malvertising (real ads that link back to poisoned sites) will grow with increased mobile adveritising revenues. While there's a 35 per cent likelihood of Indian and Australian smartphone users succumbing to a browser attack, US smartphone users will have it worse off where over 40 per cent will hit a fraudulent link.

Lookout also warns that mobile botnet networks will be a serious issue in 2012. The threat of cleverly deployed app and browser attacks to secretly ensnare unsuspecting mobile devices into an extensive network like DroidDream or Gemini which distributes spam, malware software and compromises private data is very real. We should all have a security app installed on our smartphones to provide a certain measure of protection from external threats.



Handheld gaming goes beyond social games

Party begins with better hardware and cloud integration

In many ways, 2011 was the year for social games on mobile devices. While the theme isn't going to disappear in a hurry, casual games with better graphics seems to be an emerging trend for handheld devices in 2012; also gaming on a cloud infrastructure.

With the advent of Tegra 3 tablets and dual-core smartphone chipsets this year, look forward to game developers stepping up the experience a few notches. That's right, more Infinity Blade-like games, with console and PC-like graphics and a less-casual, more-immersive, richer gaming experience. Similarly, game streaming services like OnLive and Gaikai will gain more traction, as cellular broadband becomes faster, more affordable and widespread. It's a great way to play free demos of full video games.

Enough on mobile gaming, what's happening with specialized game consoles? The recently launched Sony PlayStation Vita along with the Nintendo 3DS will spearhead their charge on fans with exclusive games and high quality titles. Apart from the obvious successor to the aging Xbox 360 console, is Microsoft working on a Vita competitor? If yes, we might see the first announcement of such a device later this year.

While social gaming won't be as big as it was last year, its main proponent, Facebook, will ensure community gaming is alive and kicking. Changes to Facebook's Open Graph will have a positive impact on social games, with Facebook users able to see in real-time what games their friends are playing. This will ensure a more rewarding end-user experience.



Flexible displays and the world beyond 1080p

Qualitative tweaks in display technology this year

On mobile devices, the display is an essential part of the buying decision. How much pixel does it pack? Is it Super AMOLED? Gorilla Glass layer? No end to customer nitpicking. This year will see the introduction of some new technology that will both amaze and excite the user's perception of display screens.

One of the most anticipated trend in mobile phone screens is the introduction of flexible displays, ever since Nokia showcased a prorotype device last year! One report suggests the display is made of carbon nanotubes whose electrical properties change when they're stretched, letting you zoom in and out. Nokia and Samsung will be among the first ones to launch a smartphone with flexible displays later this year.



Mobile phone displays will gravitate towards the 720p resolution, while we may see tablets hitting the 1080p resolution mark, and some even exceeding it. E-paper display, primarily driven by e-book readers, will become a US $1.03 billion market this year, and apart from electrophoteric displays, Fujitsu's cholesteric LCD displays with colour might also debut.

Online shopping estimated to cross $10 billion

Will witness increased consumer confidence

Slow to take-off in the early years of internet, online commerce or e-commerce is rapidly picking up pace in India, and one of the fastest growing sectors of business and investment. By the end of 2011, the overall e-commerce sector was approximately worth around ₹50,000 crore, just shy off the US $10 billion mark. The #1 e-commerce website in India is IRCTC, and travel constitutes over 80 per cent of total money spent on e-commerce websites.

But online retail destinations are also gaining consumer confidence. Flipkart, for example, processes up to 30,000 orders worth ₹2.5 crore each day, and has its eyes set on hitting the US $1 billion sales mark by 2015. What's more, after months of speculation, Amazon (the world's largest online retailer) will finally open shop in India. With the coming of Amazon, the Indian retail e-commerce scene will pull it socks and compete, which only sounds great as far as the consumers are concerned. It's a great time to be an online shopper in 2012, that's for sure.



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SHOOT at SIGHT

With point and shoot cameras now sporting professional class features such as wider apertures and HD video recording, choosing the right camera can be a painful experience. We guide you through this mess

Nimish Sawant
and Anirudh Regidi
readersletters@thinkdigit.com

Digital photography has become an essential part of our lives now. No more are digital cameras seen as a luxury, but they have become a necessity. Well, how else can you plan to capture your last day in school or your child's first birthday party or that international trip and share it online ASAP? With cameras nowadays sporting features that were unthinkable just couple of years back, it is very hard to resist the temptation of getting a digital camera.

Sure mobile phone cameras are pretty much making the basic entry level digital cameras redundant, but if you go by sales figures, it speaks a different story altogether. Sample this – a 67 per cent year-on-year growth in point and shoot camera sales for the period of October to December 2010 – a whopping 803,000 units sold. (Source: CMR's India Quarterly Digital Camera Market Review, 4Q 2010, April 2011 release).

Point and shoot cameras are evolving from plain vanilla offerings to more specialised devices. No more do camera vendors push a higher megapixel count as a selling point. That myth was busted long back and people have become smarter and don't fall for it now. Having said that, there are so many other aspects being pushed now that it is not possible for someone who is not tuned into the market to differentiate one camera from the other. That is where we come in to guide you in this process.

We decided to pit 19 of the best selling point and shoot cameras (between ₹10,000 and ₹30,000) capable of video shooting in at least 720p (and

full HD) against each other so as to help you make sense of what is being offered in the market, we also help you identify your needs and accordingly, get the right camera. Four distinct categories were identified: Compact point and shoot, travel zoom, ultra zoom and high-end point and shoot.

High-end point and shoot

Cameras in this category are comparable in features to their entry level DSLR counterparts. The review units we got for this segment are regular point and shoots, with a compact form factor and smaller sensors as compared to DSLRs, but they come with features such as wide apertures — we are talking f/1.8 and f/2.0 here, more manual control options among other things.

Features and Design

Canon had two cameras, viz. the IXUS 310HS and Powershot S100. The latter replaces the older S95 and is capable of shooting in RAW. The S100 sports a wide aperture of f/2.0 which ensures sharp images even under low light conditions. But the wide aperture reduces to f/5.9 at the telephoto end of the 5x zoom, which is annoying. The sensor size of the S100 is much larger than its other Powershot brethen as well as the IXUS 310HS and it comes in a very sturdy metal-finish body with finger grips on its front portion and a rubber thumb rest on the rear side. The IXUS 310HS is a touchscreen based camera with slightly rounded profile. Navigating the touchscreen gets annoying specially when you want to manually adjust the aperture and shutter settings. Doing them on a touchscreen is painful, you are much better off with a dedicated button or scroller mechanism. The S100 has a movable metallic ring portion just behind the lens barrel which can be programmed to adjust particular functions. This is a very nifty addition to the camera.

In the video mode, one thing to look out for is the super slow motion setting, which shoots a video at 120 or 240 FPS, but it is played back normally. You can also set the Ring Function button beside the record button on the S100 from any of the 20 functions ranging from servo AF mode, Automatic Focus Lock to Custom WB, etc. As if all these features weren't enough, the S100 also has a GPS receiver and a GPS logger which operates even when the camera is off. Be aware that a functioning GPS sips a lot of battery, specially in areas where it is difficult to get a lock on the satellite.

Nikon P7100 had a really unique design among all the competing cameras with lots of curves on the front and a battery of dials on the top. You will either completely love it or completely hate it — we loved it. Its variangle LCD has a massive resolution of 921,000 dots and there are no issues viewing the LCD even in broad daylight. The optical viewfinder comes with a diopter adjustment, but it is quite useless as you get a much better view from the LCD. Apart from the mode dial it has the exposure dial on the right hand end and a shorcut dial for WB, Bracketing, ISO and filters on the left hand side. The camera's adjustment dials are located in the front which can be used with the index finger. Just beside the thumb rest you'll find another dial. So many dials will definitely require a very steep learning curve, but once you master them, things really get quick.



Nikon Coolpix P7100



Canon Powershot S100

The other camera from Nikon falling under this segment is the Nikon P300. It houses a backside illuminated CMOS sensor and sports a wide f/1.8 aperture. Just like the Canon S100, it reduces to f/4.9 at the telephoto end. It has a measely 9 focus points as opposed to the P7100's 99 focus points. The P300 has a sturdy build and just like the S100 it has grips on the front portion as well as the thumb rest. As a complete contrast to the P7100, the P300 has very few buttons which makes navigation very easy. The right hand edge has the adjustment dial which works with the d-pad adjustment dial in the Manual mode. AF area includes face priority, face tracking, subject tracking among others.

Olympus XZ-1 was our Zero 1 Award winner last year and we decided to pitch it in this battle as well against the newer cameras. It sports a wide aperture of f/1.8 which is ideal for getting shallow depth of field. With the sensor-shift image stabilization paired with the fast f/1.8 lens, it is easy to take sharp photographs even in

Smartphones Vs Camera
With the advent of smartphones, the camera market seems to be taking a backseat according to results of the latest NPD Group survey: **http://bit.ly/v8sQvK**



Hollywood goes gaga
More than 200 of Sony's F65 4K digital cinematography cameras have been pre-ordered in the U.S., according to a Sony exec

HOW WE TESTED

We evaluated the cameras based on their ergonomics. This is a very important aspect which is always overlooked for the more fancy features. In-hand feel of the camera and accessibility of buttons was scored, with cameras having a very intuitive one hand operation scoring over those which require you to use both hands for operation. We also gave more points to those cameras that had buttons with great feedback and had zoom dials which were quiet and offered a jerk-free zooming mechanism.

The features listing was given a 30 per cent weightage as with point and shoots it is imminent to be a feature rich camera. Things such as GPS, Panorama, HD video recording, image stabilisation, various flash modes, etc. got a definite advantage over cameras that did not have these features. Connectivity options were looked at and cameras sporting PictBridge support gained extra points.

Performance testing

We divided the performance testing across various aspects of the camera such as High ISO test, Sharpness and Detail test, Flash tests, Macro test, Indoor and outdoor HD video recording test, Low light test, zoom test, among others.

High ISO Test: In the high ISO test, we shot a standard scene having a healthy mix of colours, textures, detailed objects, etc., in a group. This scene was lit under our studio lights and keeping the cameras in Aperture Priority mode at f/4.0, 0 EV, evaluative metering, we shot the scene at ISO 200, 400, 800, 1600, 3200 and 6400. All the outputs were scored out of 10 based on their clarity and resistance to noise at various ISO levels.



Low Light Test: For the low light test, we kept an object (a toy car) in a badly lit room. Keeping the camera on a tripod, we tested the camera's low light modes. We also tested the camera's performance at high ISO and how detailed the image was rendered.



HD Video recording (Indoor): We shot this scene in our office as indoors most cameras tend to introduce noise. We were looking for outputs which had minimal noise and also how well the zooming functioned. Cameras which were able to keep the faces in focus despite zooming got a higher score.

HD Video recording (Outdoor): For this we shot a series of three videos involving horizontal panning, vertical panning, zooming and checking the camera's ability to resist focus hunting while zooming. This test was carried out in broad daylight at the highest video shooting resolution.

Macro: For the macro tests, we set the cameras in macro mode if the option was present and set ISO 200 to reduce noise to a minimum. For the test shot, we took a close-up of a standard 17" LCD monitor which had been running for at least 4 hours. The distance was maintained at 4cm from the screen. The aim was to see how well the individual pixels were captured.



Sharpness Test: In this test we took two objects - a PCB and a wall of sewing thread of varying colours. We used evaluative metering, kept the camera at 0EV in Aperture Priority mode at f/4.0 and ISO 400. We scored the images based on how sharp they were, specially how well we were able to see the texture on the threads and how well the minute components such as resistors/capacitors came out in the final image.

Flash Exposure: This test was carried out in total darkness. Each camera was set in full auto mode with flash. We metered off a grey card and evaluated this image to see if the colour was exactly 18% grey as on the grey card. The aim of this test is to check how good the flash is at exposing up a scene. Scoring was based on how close grey card's image was as compared to the actual expected value.

Fill Flash Test: For this test we had a human subject at a distance of 5-6feet from the camera, in a partially lit room. We had the cameras set on Auto mode and flash intensity at standard. We let the camera decide the ISO based on its intelligence and checked the final image for clarity, focus on the faces and how well it was exposed. Cameras which overexposed the subject naturally got a lower score and cameras which were able to show a good amount of detail got an edge over the others, which rendered the background as partially or completely dark.

low light conditions. Also at its maximum zoom, the aperture is still at a respectable f/2.5. Like the S100, it sports a control ring in the front which can be programmed to control ISO or aperture or shutter among other things. Build quality is very sturdy and it has a good grip thanks to the rubber thumb rest. It sports a 3-inch 610k dot OLED screen. Navigating through the options is quite easy, but one may get overwhelmed by the number of options on offer. The circular dial beside the screen can scroll as well as act as a fourway d-pad which makes adjusting the aperture, shutter and exposure easy, and also helps in navigating through the many options. It supports the full manual M mode where the control dial around the lens controls aperture while the scroll dial controls the shutter. The XZ-1 also offers live histogram view along with RAW support.

The Creative ART filters are quite impressive, especially the Grainy Film and Dramatic Tone.

The panorama mode offers options such as manual, auto and assisted stitching. In the Auto mode, you press the shutter once and then after you follow the path to a target marker. On reaching it the camera releases the shutter. It then gets working at stitching the photos which takes quite a while. A nifty little feature.

Performance

In the low light test, the Nikon P300 gave a decent output in the Auto mode as well as at ISO 400, whereas the P7100 tended to give a very vivid image with a decent amount of sharpness. The Canon S100 had a very balanced output at ISO 400 but its low light preset mode wasn't that great as it tended to blur the details of our test subject, thanks to the ISO shooting upto 6400. Same was the case with the IXUS 310HS where the photographs at ISO 400 were better than its low light preset mode. The Olympus XZ1 gave slightly darker images in the Auto mode, but its preset modes were better.

In the High ISO tests, we noticed that the Canon S100's output at ISO 1600 was comparable to the output from the Nikon P7100 and Olympus XZ-1 at ISO 800. We got really good images with the S100 at ISO 1600 and usable ones at ISO 3200, but with prominent noise at 100 percent crops. At lower ISOs all cameras gave sharp images.

In the sharpness and detail test shot the Canon S100, IXUS 310HS and Nikon P7100 gave a brilliant performance with every strand of the thread visible perfectly, including the black and dark brown threads, where it is difficult to separate out the threads. Even the IC numbers on the soundcard were clearly legible. The Nikon P300 lost detail at ISO 400 when compared with the S100 and the P7100. The Olympus XZ1 had an issue with focussing at the set distance so we had to move it further behind. XZ1 also gave sharp images but detailing was not in the same league as the S100 or P7100.

In the macro test, we noticed a slight bit of distortion in the P7100 but pixel clarity of the image was largely intact whereas in the S100 there was no distortion but pixel clarity was not as good as the P7100.

For flash tests, the P300 was better than the rest at giving a well lit image, with the laptop screen being quite legible. The Canon S100 was the next best but there was prominent vignetting. The P7100 also gave a good flash output with well lit scene and a legible laptop screen. The flash on the IXUS 310HS was not as powerful, though.

Chromatic aberration was non-existent upto 100 per cent, barely visible at 400 per cent for the Canon S100. Even the P7100 did not have any visible fringing. With the P300 at the telephoto end, we noticed blotchy details, but no visible fringing as such. On the IXUS 310HS chromatic aberration was visible at 100 per cent crop.

While shooting with the Nikon P7100 outdoors, we found that the horizontal panning is jerky when shot while holding the camera in the hand. Zooming is smooth. Outdoors, it focuses much better than indoors, as in there is no hunting for focus for an endless amount of time. With the Olympus XZ-1, noise supression and focussing while zooming was an issue. Unwanted reflections from the flourescent lights were prominent. In outdoor shooting, details were not that great and we noticed a slight bit of barrel distortion at the edges.

With the Nikon P300 panning was shaky, but better than the P7100. Zooming while shooting isn't advisable, though.

The Canon S100 was much better than the competing cameras. Focussing wasn't an issue even while zooming onto the subject. Colours and details were quite good. With the IXUS 310HS we noticed that the overall video quality was decent, but the zoom dial has a pointy edge which is annoying to use and the zoom mechanism is also very slow when compared to other cameras.

Verdict

Thanks to its great image quality and video performance, the Canon Powershot S100 won the Best Performer award. This is the best high end compact in the market today with excellent low light performance. You will never fall short of any features including the battery sipping GPS. The Best Buy award went to Nikon's flagship Performance series camera, the P7100, as that was the next best camera after the S100 in this category. Also its pricing was quite good.

Travel Zooms

Some years ago the maximum zoom you could expect on your point and shoot cameras (not the ultra zooms) was 5x – 8x. The need for more optical zoom in compact form factors led to this category of cameras called Travel Zooms.

Features and Design

Canon had two cameras – SX 220HS and SX 230HS – in this segment which are similar in most aspects. The SX 230HS has a GPS receiver and it supports "Eye-Fi" cards whereas the SX 220HS does not. Both have a similar build quality – plastic body, good grip despite the presence of a mode dial in the place of a thumb rest. Below



	BEST BUY digit JANUARY 2012		BEST PERFORMER digit JANUARY 2012			BEST BUY digit JANUARY 2012			
	HIGH END POINT AND SHOOTS					TRAVEL ZOOMS			
Brand	Nikon	Canon	Nikon	Olympus	Canon	Nikon	Canon	Canon	Panasonic
Model	Coolpix P300	IXUS 310HS	Coolpix P7100	XZ-1	Powershot S100	Coolpix S8200	Powershot SX 220HS	Powershot SX 230HS	DMC-TZ20
Price (Rupees)(in ₹)	14950	19995	22950	25999	26995	15950	15995	17495	22990
Features (Out of 30)	13.11	7.15	21.29	19.22	19.88	10.68	15.16	16.69	16.52
Still Image Performance (Out of 35)	23.26	22.75	23.84	22.68	24.89	23.59	22.51	22.96	19.53
Video Performance (Out of 25)	16.21	16.55	14.58	11.6	17.2	14.64	16.68	16.73	14.3
Build Quality (Out of 5)	3.75	3.38	4.13	3.63	4	3.75	3.5	3.5	3.25
Ergonomics and usability (So 5)	3.6	3.2	3.55	3.25	3.6	3.55	3.4	3.4	3.3
Grand Total (Out of 100)	59.93	53.03	67.38	60.37	69.57	56.21	61.24	63.27	56.9
Features and Specifications									
Sensor resolution (MegaPixel)	12	12.1	10.1	10	12.1	16	12.1	12.1	14.1
Sensor type	BSI CMOS	CMOS	CCD	CCD	CMOS	BSI CMOS	CMOS	CMOS	CMOS
Image Processor	Expeed C2	DIGIC 4	Expeed C2	TruePic V	DIGIC 5	Expeed C2	DIGIC 4	DIGIC 4	Venus Engine FHD
Viewfinder type	None	Optical	Optical	None	None	None	Optical	Optical	None
Optical Zoom	4.2x	4.4x	7.1x	4x	5x	14x	14x	14x	16x
ISO (low/high)	160/3200	100/3200	100/3200	100/6400	80/6400	100/3200	100/3200	100/3200	80/1600
Shutter speed (fast; slow)(in secs)	1/2000; 8	1/1600; 15	1/4000; 60	1/2000; 60	1/2000; 15	1/1800; 1	1/3200; 15	1/3200; 15	1/4000; 60
Manual Focus (Y/N)	N	N	Y	Y	Y	Y	Y	Y	N
WB presets	5	5	6	6	8	5	6	6	4
Aperture range	F/1.8 – F/4.9	F/2.0 - F/8	F/2.8 – F/5.6	F/1.8 – F/2.5	F/2 - F/5.9	F/3.3 – F/5.9	F/3.1 - F/5.9	F/3.1 - F/5.9	F/3.3 – F/5.9
Built-in Flash (Y/N)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Image Stabilisation (Type)	Optical	Lens-shift	Optical	Sensor Shift	Lens-shift	Optical	Lens-shift	Lens-shift	Optical
Aperture priority (Y/N)	Y	N	Y	Y	Y	N	Y	Y	Y
Shutter priority (Y/N)	Y	N	Y	Y	Y	N	Y	Y	Y
WB Bracketing (Y/N)	N	N	Y	Y	Y	N	N	N	N
Continuous Drive (frames per second)	7	3.4	1.2	2	2.3	6	3.2	3.2	10
GPS (Y/N)	N	N	N	N	Y	N	N	Y	Y
LCD Resolution (dots)	921000	461000	921000	614000	461000	921000	461000	461000	460000
LCD Articulated (Y/N)	N	N	Y	N	N	N	N	N	N
RAW (Y/N)	N	N	Y	Y	Y	N	N	N	N
Max Video resolution	1080p	1080p	720p	720p	1080p	1080p	1080p	1080p	1080p
Battery Type	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion	Li-ion
Battery Life (Manuf rated no of shots)	240	180	350	320	200	250	210	210	260
Body dimensions (in mm)	103 x 58 x 32	100.6 x 55.4 x 25	116.3x76.9x48	111 x 65 x 42	98.9 x 59.9 x 26.7	104 x 59 x 33	59.3 x 106 x 33.2	106 x 62 x 33	105 x 58 x 33
Weight (in grams)	189	185	395	275	198	213	218	223	219
Build Quality (So 10)									
Body	7.5	7	8.5	7.5	8.5	7.5	7	7	6.5
Buttons and dials	7.5	6.5	8	7	7.5	7.5	7	7	6.5
Ergonomics and usability (So 10)									
Grip comfort	7.5	6	8	6.5	8	7.5	6	6	6
Layout of buttons	7.5	6.5	7	6.5	7	7	7	7	7.5
Intutiveness menu system	7	6.5	6.5	6.5	7	7	7	7	6.5
Menu layout, options and ease of use	7	6.5	7	6.5	7	7	7	7	6.5
Performance									
High ISO tests (So 10)									
ISO 400/800/1600	8/6/4	8/7/6	8/6/5	8/6.5/4.5	8/7.5/6.5	7/6/4	8/7.5/5.5	7.5/7/4.5	6/4/2
Sharpness / Detail									
Threadbox									
ISO 200 / 400	8 / 6.5	8 / 7	8 / 8	7 / 6.5	8 / 8	8.5 / 7.5	8.5 / 8	8 / 8	8 / 4
Soundcard									
ISO 200 / 400	7 / 6	8 / 7	8 / 7	7 / 6.5	8 / 6.5	8 / 8	8.5 / 8	8 / 7	6 / 5
Macro mode									
Distortion	6	7.5	5	5.5	7.5	7	7	7	7
Pixel clarity	6.5	7	7	7.5	6.5	7.5	7	7.5	6.5
Low light shooting mode									
Preset mode / ISO 400	6.5 / 7	5 / 6.5	6 / 7.5	6 / 6	6.5 / 8	6 / 6	4.5 / 7	4.5 / 7	5 / 5.5
Video Quality (So 10)									
Indoor Shooting									
HD Indoor Detail and Focussing	6.5	7	5	5	7	5	6.5	6.5	5.5
HD Indoor Noise Supression	6.5	7	5	5	7	5.5	6.5	7	5.5
Outdoor Shooting									
Horizontal Panning	6.5	6	6	5	6.5	6	6	6	6
Vertical Panning	6.5	6	6.5	4	7	6.5	7	7	5
Subject focus while live zooming	6	6.5	6.5	4	7	6.5	7	7	6

BEST BUY digit JANUARY 2012 | BEST BUY digit JANUARY 2012 | EDITOR'S PICK digit JANUARY 2012

	COMPACT POINT AND SHOOTS				ULTRA ZOOMS					
	Sony	Samsung	Canon	Sony	Nikon	Fujifilm	Sony	Nikon	Fujifilm	Canon
	DSC-W570	MV800	IXUS 230HS	DSC-TX55	Coolpix L120	Finepix S3300	DSC-HX100V	Coolpix P500	HS20 EXR	Powershot SX 40HS
	9990	15990	15995	19990	13950	15999	22990	23950	26999	28995
	6.09	10.17	6.48	8.4	8.42	15.77	18.6	18.39	18.9	19.56
	18.59	17.19	23.68	20.51	20.98	20.91	22.51	22.3	22.37	23.91
	10.49	9.21	16.88	14.35	11.91	9.93	19.2	15.78	14.43	17.48
	3	3.75	3.63	3.38	3.25	3.38	3.88	3.5	3.38	4
	3.4	3.1	3.4	3.2	3.6	3.45	3.65	3.6	3.45	3.65
	41.56	43.42	54.06	49.84	48.17	53.43	67.83	63.56	62.52	68.59
	16.1	16.2	12.1	16.2	14.1	14	16.2	12	16	12.1
	CCD	CCD	CMOS	CMOS	CCD	CCD	CMOS	BSI CMOS	BSI-CMOS	CMOS
	NA	NA	DIGIC 4	BIONZ	Expeed C2	NA	BIONZ	Expeed C2	NA	DIGIC 5
	Optical	None	Optical	Optical	None	EVF	EVF	EVF	EVF	EVF
	5x	5x	8x	5x	21x	26x	30x	36x	30x	35x
	80/3200	80/3200	100/3200	100/3200	80/6400	64/1600	100/3200	160/3200	100/3200	100/3200
	1/1600; 2	1/2000; 8	1/2000; 15	1/1600; 4	1/4000; 8	1/2000; 8	1/4000; 30	1/1500; 8	1/4000; 30	1/3200; 15
	N	N	N	N	N	Y	N	Y	Y	Y
	7	5	5	5	5	7	6	5	7	8
	F/2.6 - F/6.3	F/3.3 – F/5.9	F/3 - F/9	F/3.5 - F/5.6	F/3.1 – F/5.8	F/3.1 – F/5.9	F/2.8 - F/5.6	F/3.4 – F/5.7	F/2.8 – F/5.6	F/2.7 - F/5.8
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Lens-shift	Optical	Lens-shift	Optical	Sensor Shift	Sensor shift	Lens-shift	Sensor-Shift	Sensor shift	Lens-shift
	N	N	N	N	N	Y	Y	Y	Y	Y
	N	N	N	N	N	Y	Y	Y	Y	Y
	N	N	N	N	N	N	N	N	N	N
	1	NA	3.5	10	0.7	1.2	10	8	8	10.3
	N	N	N	N	N	N	Y	N	N	N
	230000	288000	461000	1229760	921000	230000	921000	921000	460000	231000
	N	Y	N	N	N	N	Y	Y	N	Y
	N	N	N	N	N	N	N	N	Y	N
	720p	720p	1080p	1080p	720p	720p	1080p	1080p	1080p	1080p
	Li-ion	Li-ion	Li-ion	Li-ion	AA	AA	Li-ion	Li-ion	AA	Li-ion
	220	NA	210	250	330	NA	410	220	NA	280
	91 x 51.5 x 19.1	92 x 56 x 10	96 x 57 x 22	92.9 x 54.4 x 13.2	110 x 77 x 78	118.0 x 80.9 x 99.8	121.6 x 86.6 x 93.1	116 x 103 x 84	130.6 x 90.7x 126.0	122.9 x 92.4 x 107.7
	116	121	140	109	431	540	577	494	636	600
	6	7.5	7.5	7	6.5	7	8.5	7	7	8.5
	6	7.5	7	6.5	6.5	6.5	7	7	6.5	7.5
	6	6	6	6	8	7.5	8	8	7.5	8
	7	6.5	7	7	7	6	7.5	7	6	7.5
	7	6.5	7	7	7	7	7	7	7	7
	7	6	7	6	7	7	7	7	7	7
	6/4.5/3	4/3/2	8/7/6	6/5/4	5/4.5/3	5.5/3.5/1.5	6.5/6.5/4.5	7/5.5/4	7.5/6.5/4	8/7.5/6
	5.5 / 4.5	5 / 4	8 / 8	6 / 5	8 / 7	7 / 6.5	7.5 / 7	7 / 5.5	6.5 / 6.5	8 / 7
	5.5 / 4	5 / 4	8.5 / 8	6.5 / 6	7 / 5	6 / 5	6.5 / 6	5.5 / 5	6 / 5.5	8 / 7.5
	7	6	7	7	7	7	7	7	6.5	7
	5.5	6	6.5	6	7	8	8.5	7.5	6	6.5
	6 / 5.5	6 / 5	5 / 6.5	5 / 6.5	4.5 / 5	4.5 / 6.5	6.5 / 6.5	6 / 7.5	6 / 7	5 / 7.5
	4	3	7	6	4	3	8	7	6.5	7
	4.5	3	7	6	4	3	7	6	6	7
	4.5	4	7	5.5	5.5	5	8.5	6	6.5	6.5
	4	3.5	6.5	5	4	5	8	6	5	7
	4	4	6	5.5	6	4	7	6.5	5	7

Viewfinder tech
According to rumours Olympus is working on a mirrorless camera that features an innovative viewfinder

Prime lens patents
Canon files patents for these lenses: 50mm f/1.4, 85mm f/1.2, 85mm f/1.8, 100mm f/2.0, 135mm f/2.0, and 200mm f/2.0

the mode dial lies the four way pad which also has a scrolling mechanism surrounded by the display, menu, video record and preview mode buttons on the four edges. The HS in the naming convention indicates that the camera belongs to the HS System which stands for high sensitivity. Both the cameras sport a backside illuminated CMOS sensor which enables better low light performance as compared to the CCD sensor which was seen in its predecessors. One design flaw is the pop-up flash unit. It pops up everytime you fire up the camera, and when you are using the flash, there is no place to keep your other hand's index finger making shooting with flash cumbersome. As far as the features are concerned, both the cameras sport pretty much most of the features seen on the S100 including slow motion video capturing, full HD resolution video shooting and a range of filters, etc.

The DMC TZ20 was the only camera we got from Panasonic in the entire test. It comes in a plastic body and is quite comfortable to hold thanks to its comparitively lighter weight. At 16x optical zoom, the DMC TZ20 had the highest optical zoom in the Travel Zoom category. A GPS receiver is housed within the camera. Notches were rarely seen on any camera in the test, but the DMC TZ20 has two of them – one on the top for power on/off and the other on the rear side to switch between the camera and preview modes.

Adjusting the aperture and shutter involve pressing the exposure button to activate respective icons on the screen. The four way pad does not scroll like the one seen on Canon. The Q Menu button brings up contextual menus in every mode. It has a full manual mode and also has a 3D mode which allows you to shoot 3D images, which can be viewed only on a 3D TV or 3D monitor. Its 461k dot screen is touch sensitive and you can activate the focus tracking by touching an area on the screen which shows your subject. You can also fire a shot by touching the LCD screen.

The Nikon Coolpix S8200 is another camera that houses a backside illuminated CMOS sensor. The model we got was a metallic red colored one with a soft rubbery finish on the front face giving excellent grip. The S8200 has 14x optical zoom, but you do not have any options for manually controlling the camera. One look at the mode dial and you know this is camera meant for entry level users. You can go in the Menu and can further customise each mode, but there isn't much to adjust for the enthusiast. We liked the in-camera HDR mode which clicks a series of images and then stitches them into one with the final shot having a high dynamic range. The night landscape mode takes a series of five consecutive shots at high shutter speed and combines it to from a single image.

Performance

Under the ISO testing we noticed a prominent difference among the cameras. Lets starts with the TZ20 – upto ISO 400 the overall image quality is decent and at ISO 400 we can see noise only at a 100 percent crop. ISO 800 onwards the noise starts to ruin the fine details in the image. The Nikon S8200 showed great details upto ISO 400, at ISO 800 the noise starts creeping in but the image is not as bad as was observed with the TZ20 at ISO 800. At ISO 1600 you start losing the detailing and noise is quite prominent. With the Canon cameras, the image quality was quite good upto ISO 800. At ISO 1600 some noise does start to show, but we still got the details on the threadbox and deo bottles and the larger text on the magazine. On the whole the ISO performance of the SX220HS was slightly better than the SX230HS.

In our sharpness and detail test, we noticed that all cameras except the TZ20 gave great detail at ISO 200 displaying each individual thread on the threadbox and legible PCB text. It's at ISO 400 that we start to notice slight differences. With the TZ20, minute detail was lost at higher ISOs whereas with the Nikon S8200 the IC numbers started to get a bit blurry. The Canon SX220HS was the only camera which did not show much deviation in detailing at ISO 400 thanks to its better higher ISO performance. Images from both the SX220HS and SX230HS were sharp at ISO 400.

Under the low light shooting mode, we found that the output from the in-camera low light modes was not up to the mark. For instance, in the Canon cameras, at ISO 400 in Program mode, you get more details in the image under low light than the camera's own low light mode, which tends to set the ISO to values over 1600, which leaves you with little detail. With the Nikon S8200, we found that the Night Landscape mode was pretty decent to shoot in low light. The Panasonic TZ20 was not very good under low lights. Even the photographs taken in Night mode, lacked details.

Flash testing is where the so-far invincible Canons tasted some defeat. The Nikon S8200 provided the best overall flash output, the words on the laptop screen were readable, the lighting in the overall scene was balanced and there was hardly any vignetting. With the Canon cameras, we noticed that the legibility of the laptop screen was not that great and the overall lighting did not seem balanced. The TZ20 tended to blow up the lit screen of the laptop but it lit up the overall scene well.

As far as video performance went, the Canon cameras were much better than the Nikon and Panasonic ones. In the indoor shooting test, noise was not suppressed very well, but focussing wasn't an issue with the Canon SX220HS and SX230HS. We found the Panasonic TZ20 to be hunting for focus at the telephoto end. Same was the case with the Nikon S8200 despite keeping the



Canon Powershot SX 230HS

continuous focus on. In the TZ20 the colours in indoor shooting were quite vivid and panning in the S8200 was not as jerky as what was observed in the Nikon P7100. As far as the Canon cameras went, the quality in the 1080p clips was much better than that in the 720p mode.

In the outdoor shooting scene, the SX220HS and SX230HS were quickly able to adjust the in-camera lighting based on the shadows. Image stabilization was good while panning, even at the telephoto end. Overall detailing in the leaves on the trees and surrounding buildings was good. With the Nikon S8200, noise suppression was much better, but focus hunting was still quite evident. With the TZ20, panning vertically at the telephoto end was quite jerky. We noticed jaggies in the output while panning horizontally.

Verdict

The award for the Best Buy was bagged by the Canon Powershot SX230HS for its consistent performance across all the tests. It also had a healthy mix of features. If you look at the overall scores, there was decent competition among all the competitors. If you do not want the GPS functionality, you should go for the SX 220HS which is identical to SX230HS and is priced lower for the same overall features and performance output.

Ultrazooms

An ultrazoom camera walks a fine line between being an SLR and a point and shoot. Compared to an SLR, they have smaller sensors, no mirror or an optical viewfinder. The lens optics will normally not be too great either and is a very important factor to consider when picking a camera in this category. What you do get is a fairly large camera, the functionality of a DSLR, and a long zoom.

Features and Design

We received six cameras for this test and the first thing that struck us was the size of these cameras. All of them were almost as large as full-fledged DSLRs and heavy as well. The Nikon L120 was the smallest of the lot, but the design is such that it is a little heavy for single-handed use, but too small to use comfortably with both hands. The Finepix HS20 EXR and the Sony HX100V were the only cameras to feature control rings on the front. The HS20 EXR was a notch ahead and provided a focus ring as well as a zoom ring, also, the zoom on the HS20 EXR is mechanically controlled unlike the electronic control on the HX100V. All the other cameras had traditional zoom controls, except the Nikons, which include additional thumb-switches on the lens.

All the cameras except the Finepix S3300 and Nikon Coolpix L120 had articulated displays, with only the Canon SX40 HS having a fully articulated display that could be flipped as well as rotated. All other displays were just hinged at one or two fixed points. All the cameras except the Coolpix L120 had Electronic View Finders. The Finepix HS20 EXR and Sony DSC-HX100V have proximity sensors next to the EVF and switch to it automatically when the sensor is covered. All the other cameras have buttons to switch between the LCD and the EVF. One thing to note is that the refresh rate of the EVF and LCD on the Finepix S3300 seemed to be a bit low as the response was very sluggish.

The cameras all featured some sort of panorama mode or the other. The mode on the Fujifilm camera works by taking three individual shots and stitching them together. The first shot is aligned by the user, the other two are taken automatically when you line up certain markers on the screen. The Canon camera features a panorama assist mode where it will keep a bit of each picture in the frame, to help you line up your next shot. The Sony and Nikon cameras feature a sweep panorama mode. This mode is much easier to use, but more difficult to master at the same time. Of all the above methods tested, by far the most accurate results were to be had from the Nikon and Fujifilm cameras.

Coming to ergonomics, the Finepix HS20 EXR again stands out. It has a plethora of extra buttons and most of the regularly used functions are easily available at hand instead of digging into the menus and also includes an extra dial for adjusting settings. Barring the L120, the cameras all had mode dials, with all of them having the facility of accessing a custom preset from the dial itself. In hand, the cameras were all comfortable to hold and shoot, but the two Nikon's felt a bit cramped in comparison, especially the L120.

Performance

The Canon SX40HS aced the high-ISO tests, producing clean images upto almost ISO800. Noise does creep in at ISO400 itself, but it is barely noticeable, but even ISO800 is usable. The worst performers were the Nikon L120 and the Finepix S3300. The noise reduction on the S3300 started blurring out details at even ISO400, with ISO800 and above being extremely noisy. In fact, ISO800 on the S3300 was worse than ISO3200 on the SX40 HS. The Ninon P500 and the HS20EXR performed quite well, performing almost at par with the SX40 HS. ISO1600 onwards is barely usable on any of the cameras and, it goes without saying, ISO3200 and 6400 are only for emergencies, the quality is that bad.

The Canon SX40 HS again aced the sharpness tests as well, managing to capture detail in all areas of our test shot. The L120 was also almost as good, but lost out on detail in the darker areas of the image. The Finepix HS20 EXR was much worse off, the text on the PCB was barely legible and the threads were patchy in many areas, with a complete lack of detail on the black and white threads.

All the cameras except the Finepix HS20 EXR fared well in the macro test, with both the Sony HX100V and the Finepix S3300 showing a lot of detail at a 100 percent crop. Almost all the images were subject to a certain degree of barrel distor-

PARANORMAL ACTIVITY

During the testing we noticed a couple of unusual things. The L120 had some trouble reading the two Sandisk memory cards that we had though the other cameras didn't seem to have any problem with them. The other issue was with the Fujifilm Finepix HS20, which suddenly threw up a "!Frame no. full" error message while our resident photographer was out clicking. A quick internet search revealed that this is an issue prevalent among certain Fujifilm cameras and the only solution is to format the card, after taking a backup of course, and then resetting the "Frame no." option in the menu of the camera to "Renew"

Megapixel? What's that?
The LSST or Large Surveilance Synoptic Telescope aims to take images of the night sky using a massive 3 billion pixel sensor

App of the Year
Instagram won the iPhone 'App of the Year' award thanks for adding two million users each month

tion. Strangely, the Canon SX40 HS performed quite badly and could not resolve the individual pixels very well. The HS20 EXR was the worst of the lot.

Coming to the flash tests, both the Fuji cameras did a good job this time around and performed marginally better than the Sony and the Canon cameras. The two Nikon's also fared well in this test. The grey card test showed the SX40 HS coming into the lead again with far more accurate exposure values as compared to the other cameras. Flash power will have to be manually increased to compensate for the underexposure. The Red Eye tests were of no consequence as none of the cameras showed any hint of red eye in Red Eye Reduction mode.

The low-light test is where the Finepix HS20EXR and the Sony HX100V should have shined, and they did. Both cameras feature special sensors and processing algorithms specifically for improving low-light performance. Even at high ISOs, the Sony HX100V showed very little noise due to its aggressive noise reduction algorithms, this was at the cost of detail and the images were very soft and showed barely any texture. The Finepix HS20 EXR managed to control noise quite well in the full Auto and EXR modes. The L120 and the S3300 were the worst performers here with extremely noisy and barely usable shots. The cameras did perform reasonably will in P mode at ISO400, exposures were long and required a tripod, but barring the L120, the images were clean. The SX40 HS and P500 took a marginal lead based on sheer image quality.

Image quality at the tele end was very mixed. The Canon SX40 HS showed purple fringing without even zooming in to 100 percent, but the texture and details were great. The two Nikons and the Finepix S3300 showed the least amount of fringing, barely visible at even a 100 percent crop. The Finepix HS20 EXR produced a sharp image but lacked detail while the shots from the Sony HX100V were just about acceptable.

The Finepix HS20EXR performed very well in the video recording tests, especially indoors with very vivid colours. The camera is however, let down by its mechanical zoom ring and insufficient IS. Manipulating the ring resulted in a very jerky zooming experience and the lack of IS showed at the tele end. Sony HX100V had the best performance as far as video went. There was absolutely no shakes while panning and details came out well. Subjects never lost focus even on the smooth zooming. The IS on Canon SX40 HS worked well, image quality was good, focusing was fast and noise suppression was good indoors. The one slight niggle was motor noise being recorded along with the video. The L120 and the S3300 were awful, both cameras showed a lot of noise, couldn't focus and had blown up highlights. The P500 was strictly average in this test and performed decently enough.



Sony DSC-HX100V



Canon Powershot SX 40HS

Compact Point and Shoot

These cameras are the staple, everyday cameras in this age of digital photography. These cameras have a seen a minor revolution from their earlier "barebones" design. Image manipulation seems to have taken centre-stage here, with the inclusion of diverse shooting and scene modes on every camera, along with options for editing the images on the camera itself.

Features and Design

The Sony DSC-TX55 was possibly, the slimmest camera we received for testing. The Samsung MV800 was also unusual in that it had an articulating LCD that could flip upwards by a full 180 degrees. Both, the Sony DSC-TX55 and Samsung MV800 had touch-screens and the DSC-TX55 even featured an OLED screen. This is a trend we hope to see catching on in cameras soon as an OLED screen has far better contrast and dynamic range than a standard LCD.

What is notable in these cameras is the ridiculous number

Verdict

The verdict is in and the winner is... the Sony DSC HX100V. The camera aced the video tests and came up with the highest test score across all the cameras in the entire comparison. A good camera and packed to the gills with features, this camera is a must buy. Canon's SX40 HS wins our Editor's Pick award. It was actually the best performing camera in this category, but its high price of ₹28,995 pulled it down.

of features and scene modes on offer. The Samsung MV-800 even has a setting where you can see a thumbnail of a pose so you can pose, or get your subject to pose, using the image as a reference! All the cameras feature what the manufacturers call an sAuto or iAuto mode, which allows you to take shots without messing about with any of the settings. The camera will automatically decide on what scene mode to use and, in our experience, the camera was spot on in most cases. The Sony DSC-TX55 also features an iAuto+ mode, which is meant to reduce noise and jitter.

All the cameras feature some sort of panorama mode. The DSC-TX55, W570 and MV800 require you to take the shot as a steady sweep from left to right, which is quite difficult in practice. The Canon uses stitch assist mode which is even more of a pain to use because it isn't very accurate. Among these cameras, the MV800 managed the best panoramas.

Ergonomically speaking, the Canon IXUS230HS was possibly the most comfortable. The body was comparatively larger and even though the menu and mode buttons were unusually placed, along the right side of the camera, they were readily accessible. The Sony DSC-TX55 and Samsung MV800 both had touch-screens so all the controls were on the screen. Compared to the Sony, the MV800s UI was sluggish, but not enough to be unusable. One irritant was the zoom lever on the Sony DSC-TX55, the lever is tiny and a bit of a pain to use.

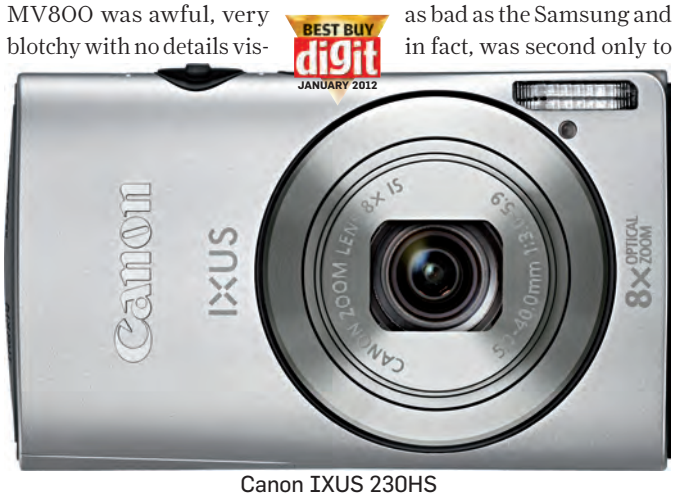
Performance

The IXUS 230HS performed very well in the ISO tests, producing usable images even up to ISO1600. The image quality cannot be compared with the other higher-end cameras like the SX40 HS, but it is quite good in this category. By far the worst performer was the Samsung MV800. Images at ISO200 were noisy and even at ISO400, the noise was too much for the image to be of much use. The IXUS 230HS again performed commendably in the detail and sharpness tests, beating all the other cameras in this category by a significant margin. The test images were extremely sharp and detailed, only showing a lack of texture on the darker threads of the thread box.

In the macro tests, the Samsung MV800 suffered from the worst barrel distortion, but it is only comparative as all the cameras suffered from a degree of distortion. The W570 showed a significant lack of separation between the pixels in this test, the rest of the cameras performed about the same.

The fill-flash tests saw all the cameras perform identically, with only slight variations in intensity of flash. The worst was the W570 though, with blown out images and illegible text on the laptop screen. The grey card test was, once again, a place where the IXUS 230HS took the lead, correctly exposing the grey card to reproduce the correct intensity. The rest of the cameras underexposed the shot and will require correction. Red eye tests saw all the cameras perform at par with no red eye phenomenon visible in our test subject's eyes.

For the telephoto tests, the cameras did not really have enough zoom for purple fringing to actually manifest itself, but the IXUS 230HS managed it all the same. Considering that it has at least 3x zoom over the other cameras, this is acceptable. The image from the MV800 was awful, very blotchy with no details visible, though the colours were intact. Both the Sony cameras produced images that looked alright when zoomed out, but at a 100% crop, there were barely any details present. The IXUS 230HS produced comparatively better images with only mild blotchiness.



Canon IXUS 230HS

The DSC-TX55 and W570 performed reasonably well in the low-light test. This was expected of the DSC-TX55's EXMOR R sensor, but the W570 performed at par, if not better than, its counterpart. The Samsung MV800 managed a good showing in this test, showing good sharpness in its low-light mode. The ISO400 P-mode however, saw the DSC-TX55 taking a significant lead with much improved image quality.

Videos shot on the Samsung MV800 were the worst we've seen in the tests so far, with even light reflections getting curved. Barrel distortion was very prominent and there were no details evident in even the outdoor shots. The same can be said of the W570 as well. The Canon IXUS 230HS performed extremely well in this test and, just like its bigger brother the SX40, recorded the sound of the motor while zooming in and out. The Sony TX55 presented a very noisy video indoors, but nothing as bad as the Samsung and in fact, was second only to the IXUS230 HS in terms of performance. One thing to note is that the DSC-TX55 showed a significant drop in quality from 1080p to 720p.

Verdict

The "Best Buy" winner in this category has to be the IXUS230HS. Good build quality, ergonomics and, most importantly, excellent image and video quality are what sets this camera apart. The Sony TX55 is also worth mentioning here. A good camera in its own right, the slim form factor and high resolution OLED display will appeal to many. The only let-down is the price, at almost ₹20,000, considering the image quality, you are mainly paying for the design.

Contact sheet

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Panasonic	1800 103 1333	helpline@in.panasonic.com	www.panasonic.co.in
Samsung	1800 3008282	NA	www.samsung.com
Sony	1800-103-7799	sonyindia.care@ap.sony.com	www.sony.co.in



TABLET SUTRA

Tablets came a long way in 2011, from near-irrelevance to considerable utility. We compared 17 tablets to find out which would fit your needs and budget best.

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Tablets have come a long way since the iPad released back in 2010, its competitors scrambling to release half-baked products in a mad rush to make a (largely unsuccessful) mark. Consumers did sit up and take notice of tablets as secondary computing devices along with a desktop or laptop PC, but not many were dazzled by their potential or value. Plus a lot of early tablets were almost exclusively expensive, so a large base of consumers didn't spare much thought of buying one. Even in the beginning of 2011, no one really bothered about them tablets. We nodded at their increasing presence in electronic stores and malls, spent a few seconds wondering where they would fit in between the smartphone and the laptop in our lives and moved on. But as is usual in technology, tablets eventually hogged the limelight and became one of the fastest growing product segments in 2011. They have become the hottest gadgets around. Everyone wants one, partly because of better specs and multi-tasking between media, web browsing, office-specific tasks and a bit of gaming, and dropping prices. All this in a form factor that's much more convenient to carry around than a laptop or a netbook. Consumers, even though a small demographic at the moment, have found a way to integrate it in their lives, between the smartphone and the laptop. And these devices are available across multiple price points – critically, the sub ₹15k price bracket.

For this edition of the tablet test, we are testing 17 tablets

available in India, across all price ranges. To make it simpler for you, we've divided the tablets into two price segments — sub ₹20k and above ₹20k.

Sub-₹20k

This is the critical category – the one that helped the tablets become popular amongst the masses. This category has six tablets. Within this price band, two tablets are priced at less than ₹10,000 – the Mercury MTab and the Beetel Magiq (the first one, not to be confused with the Magiq II). Despite the two having a similar display size, they are vastly different from each other.

The MTab takes a lot of design cues from the Samsung Galaxy Tab P1000. The black and white plastic body has an okay build quality. The 4GB internal memory is complemented by a microSD card, allowing up to 32 GB more. The Beetel Magiq, on the other hand, does things quite a bit differently. Firstly, it can actually work as a phone – it even has the call connect and disconnect buttons! The plastic body is topped off with an aluminum battery cover and an integrated kickstand. The kickstand feature will be quite useful for video chats or watching videos. However, where the Magiq loses out to the MTab is in the feature set – resistive touchscreen and still stuck on older Android 2.2 when everyone else seems to have moved on to newer Android versions. Having said that, we should mention that the UI on the Magiq is indeed very good. It follows the concept of multiple desktops, and allows you to categorise widgets, shortcuts and



Mercury MTab



Beetel Magiq

HOW WE TESTED

For this tablet comparison, the test process included a combination of processes used in two separate categories – laptops and smartphones. This allowed us to compare and rate the tablets across all parameters: performance, features and the build.

You surely wouldn't want a tablet that is sluggish or hangs the moment you open a bunch of apps, would you? To ensure that we test the performance of all tablets, we ran a series of benchmarks. The benchmark tests: Quadrant, Antutu, LinPack (single thread + multi threads) and PeaceKeeper threw up scores that allowed us to objectively compare the performance of each machine.

The tablets are also a bit of gaming devices, to a certain extent. After all, you might suddenly want to play *Angry Birds* or the latest *Need For Speed* game. Hence, we ran the GLBenchmark 2.1 (Egypt standard + Pro Standard), which gives an idea of the graphics performance of the tablets.

All these benchmarks work on the Android platform, while Quadrant and Antutu aren't available on iOS. Incidentally, only PeaceKeeper is available for the BlackBerry Tablet OS!

Beyond the benchmarks, we also tested the startup time of each tablet. This was the time taken from the moment the power key is pressed, till the lock screen/home screen of the OS is displayed.

The tablet is also a multimedia device, and the audio/video performance needs to be analysed as well. We transferred a 720p HD video (.mkv) as well as a SD video (.avi) on to the tablets. By doing so, we not only we get an idea of how good the display is and how smoothly the hardware can handle the video, but also which OS doesn't handle some basic video codecs. On such tablets, we installed a third-party media player with the necessary codec. The audio quality (clarity and loudness was also analysed at this stage.

When you spend so much money for a tablet, you want it to look great too, right? We've given each one scores on the material used – plastic, aluminum or a mixture of the two. We have a band of two points within each, allowing us to differentiate between two tablets made of the same material, but that offer different quality.

What good is a tablet that doesn't have good battery life? There are two ways of testing this – one is the minimum battery backup offered, at full load. Playing a video in a loop till the battery runs down can test this. The other, and the more real-world scenario, is the method in which we use the tablet in consistent (re: daily) usage scenarios and see how good the battery is. This usage includes a bit of video viewing, web browsing, ebook reading, game playing with the Wi-Fi connected throughout.



ICS goodness for Galaxy phones
Samsung confirms Ice Cream Sandwich coming to Galaxy SII in early 2012

Its a ban!
HTC ushers in the new year with a ban on its smartphones in the U.S. market



Viewsonic ViewPad 7e

apps according to them.

The Viewsonic ViewPad 7e has just arrived in the Indian market. The form is based on the concept of straight lines and minimalist design. Its sparkling white body attempts to bring in a retro look, or so it seems! Four hardware buttons accompany the 7-inch display, and that works both ways—it looks good and is easier to use in the dark than touch-sensitive keys, but does seem out of place in the overall touchscreen environment. We didn't mind the overall build quality, but the performance package left a lot to be desired. The tablet's display screen isn't the best, the touch experience isn't smooth; it's as if there's a plastic protector stuck on the top. Secondly, the "3D" interface slows down the performance. And takes ages to respond itself, even if you're trying to move a widget around. When we received the tablet, it was a normal Android tablet. A couple of days later, we downloaded a 300+ MB update that reared its notification head. Post that, access to Android Market was removed, and a bunch of other apps were integrated into the ROM. If you're Amazon, this is acceptable, since there's an equally loaded app store as an alternative. In this case, nothing of that sort really exists.

When we had reviewed the Reliance 3G Tab sometime back, we were pleasantly surprised by the overall experience it offered – decent build quality, a good touchscreen, slick UI and good battery life. However, the only catch was that it was locked to the Reliance 3G GSM network. Makes a lot of sense for someone who doesn't mind signing up for a Reliance 3G plan as well – an added monthly expenditure. From what we experienced, the speeds on offer are quite good, and the 3G Tab's battery lasted about four hours as a pretty competent Wi-Fi hotspot. Despite having the lowest benchmark figures in this price segment, the 3G Tab doesn't feel any slower than the rest of them. We've given this the **Editor's Pick** award in this category, simply because it flatters to deceive. For the better!



Reliance 3G Tab

The only 10-inch screen tablet in this price segment is the MSi Enjoy 10. Its 10.1-inch display has a resolution of 1024x768 pixels with a 4:3 aspect ratio, which frankly just seems out of place in the widescreen format ratios of most tablet displays. Despite a 1GHz processor and 512 MB of RAM, the boot-up time was around 1 minute and 30 seconds. Despite the benchmark scores indicating very good performance, the Enjoy 10 seemed a lot more sluggish in real-world usage. In the midst of very normal usage patterns, it would suddenly slow down (almost freeze) and take its own sweet time to respond. Unless you really want a 10-inch tablet that offers a USB hub as well, we suggest you check out the alternatives in this price bracket.



MSi Enjoy 10

The winner

Despite having the same 1GHz Cortex A8 processor as most of its rivals, the Slide has by far the best benchmarking figures, and absolutely no shenanigans with performance. A minimalist UI over Android 2.3 has retained performance along with functionality. With 8 GB of built-in storage, a microSD card slot and a USB hub (compatible with data cards as well).

No real faults with the iBall Slide's build quality – even the plastic seems quite solidly put together, given its price. The 7-inch display felt better than quite a few of the rival tablets. This could just be the perfect "first" tablet experience, without too much expense! At a price of just under ₹14k, we have a real winner on our hands.

₹20,000 and above

This is the business end of the tablet market, quite literally. In the previous category, we had various flavours of Android across all tablets. But here's where the mix becomes considerably varied, with Apple's iOS and BlackBerry's Tablet OS mixing it up with Android.

First up is the BlackBerry PlayBook. Superb in many ways and equally appalling showing in many other ways. The PlayBook does considerably well in some aspects, namely: the excellent display, good performance, unbelievably brilliant multitasking capabilities and a very sleek form factor. But, the over-reliance on paired BlackBerry phones to achieve its full potential is a turn-off for someone not using a RIM smartphone. And we've been hearing that the Android apps will be ported to the tablet, but that hasn't happened. Maybe, with the Tablet OS 2.0 update early next year, we'll get the promised integrated email and



iBall Slide

THE RISE OF THE HYBRIDS



Late last year, the Dell Streak 5 was laughed off for multiple reasons, the primary being the neither this nor that display size. It was considered too uncomfortable to be a smartphone, and too small to be a tablet. Fast forward another year, and we have these mid-way devices rising up again. Aptly name genre this time, the likes of the Samsung Galaxy Note, the new Motorola Razr and the Acer Iconia Smart offer something slightly bigger than the smartphones, but smaller and easier to pocket than the 7-inch tablet. While the demographic these devices will appeal to be limited, the usefulness is unmistakable. Expect more devices in this category in 2012. And just maybe, either the definition of a big smartphone will change, or the tablets will get a smaller display size than 7-inches at the moment.

BBM client. At the moment though, you need two devices to complete the purpose of one. Not something many people find acceptable.

The Acer Iconia A500 is the first of the three Wi-Fi only tablets we're about to talk about. Tipping the scales at 730 grams, it is by far the heaviest of the lot, despite being just 13.3mm thick. The build quality is appreciative, even though we must criticise the fact that you can't really hold the A500 in one hand for more than five minutes at a stretch. Its 10.1-inch display is impressive though. It handles colours well and displays considerably crisp text. Brightness levels are quite good too, and at full brightness, you can comfortably read text in bright sunlight. Battery life is standard fare – six hours if you're watching a movie. Speaking of which, the HD video playback was smooth, and the display's crispness was more than welcome here as well. This is a huge improvement with the Android 3.2 update, considering that Android 3.0 couldn't even play most codecs natively.

Onto iPads now. The Wi-Fi only version of the Apple iPad 2 is miles ahead of the competition when it comes to sheer performance stakes. Our benchmark scores prove that to a certain extent. At 8.8mm thickness, this one is the second slimmest beauty walking the tablet ramp, with the Galaxy Tab 750 being the slimmest. More on that later! Back to the iPad 2, and we're essentially talking about a tablet that rules the entire market single-handedly. And there's a good reason for that. The aforementioned performance figures, solid aluminum unibody build, slim and light form factor, best in the class display and the best in the class (yet again!) battery life. The 9.7-inch display means that in most cases, the iPad 2 will be more comfortable to hold than the slightly bigger 10.1-inch IPS LED display ones. Brightness levels are by far the highest on this tablet, which it manages while retaining the individual punch of each colour – the whites remain crisp white and the blacks remain dark. Unlike most AMOLED displays (yes, we're looking at you Galaxy Tab 750), the red and orange colours don't become overbearing. It has excellent battery life, about 8-9 hours of video viewing, with Wi-Fi/3G connected in the background. For most medium load usage scenarios, this one will last about a week on a single charge!



BlackBerry PlayBook

However, the mighty iPad 2 does have some drawbacks. First, it's highly dependent on iTunes to transfer music and movies to it. For most other files, you can use services like Dropbox to get around this limitation. Secondly, iTunes supports very limited video codecs. You can download any third-party media player to play back formats like MKV on the tablet. But even if you use a third-party media player, you still need to transfer the files to that app via the iTunes interface. This can be cumbersome.

The Sony Tablet S may be the newest arrival on the scene, but it comes with some style. Straightaway, its unique design will get your attention. Sony designers say a folded open magazine inspired the design. The Tablet S is quite thick (at its thickest point) at 20.6 mm, but comes down 10.1 mm at the slimmest point. The wedge design does flatter to deceive to a certain extent – it's not as heavy as it looks. At 598 grams, it's slightly lighter than the iPad 2, and that says a lot. Admittedly, the Tablet S is made completely of plastic, while the iPad 2 has aluminum. Having said that, the plastic used in this case seems to be very high quality, coupled with excellent build quality. We didn't feel any flex on any part of the panel. The 9.4-inch LED display does very well in terms of brightness levels, text crispness and keeping all colours on an equal tone. However, the reflective nature of the display reduces viewing angles considerably. We liked the minimalist tweaks to the Android UI – it added a dollop of functionality without really affecting performance. The standard Android keypad has been done away with, and replaced with one that offers the alphabets and number pad on the same display (reduces steps needed to access numbers and to go back). This is the first tablet to receive the PlayStation certification (no real surprises there!), and carries it on by offering the *Crash Bandicoot* and Pinball game on



Acer Iconia A500



Apple iPad 2 (Wi-Fi)

ME TAB X1 FROM HCL: A FEATURE-LOADED, AFFORDABLE TABLET



The year 2011 redefined the tablet market completely. Tablets as a genre caught the attention of the consumers, not only because users found a place for them between the smartphone and the laptops, in the gadget eco-system. But the biggest reason was the fact that the tablets didn't exclusively remain the device for the rich. A whole bunch of tablets were launched in the sub ₹20,000 price bracket.

The budget tablets tend to offer the full tablet experience, but do compromise on certain aspects. These will usually be features/specs or performance. This is largely due to the fact that in comparison to the more expensive siblings, the budget tablets have a slightly less powerful processor, display with less resolution, a slightly older version of Android and sometimes even less memory. Critically, the price has to be kept low, so as to allow a bigger consumer demographic the ability to afford this unique device and integrate it into their lives.

Let's take a look at the critical aspects of a tablet individually, and see where the rivals stand in comparison to each other.

PROCESSOR

An ARM Cortex A8 processor that clocks at 1GHz powers the ME Tab X1 from HCL. The range of processors we see in this price bracket usually range between 800MHz and 1GHz. The ARM Cortex A8 processors clocking at 1GHz power all the Mercury MTab, the Viewsonic ViewPad 7e and the iBall Slide. The only 800MHz tablet in this price segment is the Reliance 3G Tab, which is powered by an ARM 11 processor. No shortage of power on these tablets, despite being much lower priced than the higher end tablets.

The only sacrifice, at least in this aspect, is the CPU core specification. All the above-mentioned processors are single core ones, unlike the dual core versions that power the higher priced versions.

DISPLAY

We often hear that tablets are available between 7-inch and 10-inch display sizes. However, the 7-inch display size is the most popular one in this price category. Except the MSi Enjoy 10, all the rivals have similar display sizes. The Mercury MTab, Beetel Magiq, Reliance 3G Tab and the iBall Slide have a display resolution of 480x800 pixels, while the Viewsonic ViewPad 7e has a resolution of 800x600 pixels. The ME Tab X1 from HCL also has a display resolution of 480x800 pixels on the 7-inch display.

A higher resolution might sound better on a display, but what is more important is the crispness of the display, no matter what the pixel specs.



The crispness of the display helps in making text readability easier for mails and messages, video watching a lot more fun (well, this is THE multimedia device for a lot of people) and web browsing becomes less of a strain on the eyes. While a higher resolution is regarded as a good thing for most tablets, what is more important is how crisp the display is, how easily it handles colours and a quick refresh rate to ensure that UI effects are smooth.

SYNCING CONTACTS & CALENDAR

Most Android tablets do not have dedicated desktop management software of their own, and usually expect the user to sync stuff like contacts, calendar entries and notes using the Google account. However, this isn't always the most comfortable thing to do. Like in a phone, you may usually only save contacts that have a mobile number linked to them, and not those that are just email contacts. Using Google to sync everything back to your account will mean that ALL contacts on the online account will be transferred to your device, including just email addresses. Not only does this make the contacts list unnecessarily big, but also makes it difficult to find a contact quickly when you need to the most.

HCL gives users the option of both, thanks to the ME Connect desktop software. It is just like the desktop suites you get to manage Nokia and Blackberry smartphones, and allows you to comfortably sync contacts, calendar entries and notes from your PC. This allows the user to be selective about what stuff they want on the tablet device, and can leave out all the stuff that isn't necessary.

COMPATIBILITY WITH EXTERNAL DEVICES

Something that a few tablets offer is the USB hub feature, that allows you to plug in a USB data card into the tablet and be able to access the broadband services off it. Since some tablets are in the Wi-Fi only version, and do not have a SIM card slot for EDGE/3G connectivity on the move, their portability aspect will be considerably handicapped. The ability to plug in a USB dongle and connect that to the Internet allows for web access on the move. The likes of the Reliance 3G Tab and the Beetel Magiq don't have the USB hub feature, since they have the SIM card slots for data services. However, the ME Tab X1 from HCL and the iBall slide offer the USB hub feature.

This feature adds to the multimedia capabilities of the tablets. You can plug in USB based flash drives, and transfer multimedia and other content to the tablet. Hence, the need to connect it to a PC to transfer the data to and from the tablet is also negated.

The HDMI out on the ME Tab X1 from HCL allows HD 1080p movies and games from the tablet to be viewed on a big screen television.

PRE-LOADED APPS

Tablets and apps go hand in hand! And if the apps are preloaded on the tablet, all the better. Most tablets offer the usual suspects in the preloaded avatar - Facebook, You Tube, Twitter, a dedicated app download store in some cases and even links to download paid apps and games in trial versions. The ME Tab X1 from HCL offers real value adds in terms of the preloaded apps. Users can book discounted tickets using the Cleartrip application, books and magazines at a discount from The Wink bookstore and use the preloaded office suite for document editing and management. It also has HCL Touch, a 24x7 one-touch backup service.

BATTERY LIFE

It is critical for the tablets to offer a good battery life to stay powered up with you for a long day at work, or at least get you through a 4 hour movie viewing session. The 3500 mAh battery of the HCL ME Tab X1 aims to offer all that, and a lot more. Incidentally, the likes of the Beetel Magiq, Viewsonic ViewPad 7e and the Reliance 3G Tab offer batteries of a smaller capacity.

HCL ME TAB X1: KEY FEATURES

- Attractive price: ₹10,990
- Compatible with almost all 3G USB dongles and data cards
- Calendar, contacts, notes and tasks sync with ME Connect
- USB pen drives accessible as a plug-n-play option
- Customized apps for India with 35 content partners to offer a comprehensive user experience
- Extra from Cleartrip, Wink ebooks, emagazines worth ₹3,000 and free Hungama.com downloads with ME Tab X1
- An HDMI port for 1080p TV out
- A 3100 mAh specs battery, for around 8 hours of normal usage or 4 hours of movie watching
- Light weight of 350 grams

EDITOR'S PICK digit JANUARY 2012 BEST PERFORMER digit JANUARY 2012

	TABLETS UP TO ₹20,000							
Brand	**Mercury**	**Beetel**	**Viewsonic**	**Reliance**	**iBall**	**Msi**	**BlackBerry**	**Acer**
Tablet name/number	**Mtab**	**Magiq**	**ViewPad 7e**	**3G Tab**	**Slide**	**Enjoy 10**	**PlayBook**	**Iconia Tab A500**
MRP (version we tested)	**₹9,499**	**₹9,999**	**₹11,990**	**₹12,999**	**₹13,995**	**₹17,999**	**₹27,990**	**₹29,500**
MRP (Other storage options)	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**₹32,990 (32GB), ₹37,990 (64GB)**	**N.A.**
Street Price	**₹8,990**	**₹8,999**	**N.A.**	**₹12,990**	**₹13,995**	**N.A.**	**₹26,990**	**₹26,900**
Pros	Good battery life, decent build quality	Lots of internal storage, integrated kickstand	Classy looks, well built	Well built, slick UI, good battery life	Very good performance	Only 10-inch display in this category	Good performance, excellent multi-tasking, sleek form factor	Well built, snappy OS performance
Cons	Not too much internal storage	Resistive touchscreen	Sluggish UI, no access to Android Market	Locked to Reliance GSM network	None	Sluggish performance	Limited purpose, needs BlackBerry phone to complete feature set	Heavy, reflective display
Ratings								
Performance	11.95	12.4	11.45	11.71	16.34	12.38	10.06	19.93
Features	15.62	15.85	15.56	15.74	17.37	15.14	19.12	18.06
Design	15.9	16.2	15.9	18.75	18.45	18.3	21.9	22.8
Final Score	43.47	44.45	42.91	46.2	52.16	45.82	51.07	60.79
Specs								
Processor	Telechip (ARM) Cortex A8	Qualcomm Snapdragon S2	ARM Cortex A8	ARM 11	ARM Cortex A8	ARM Cortex A8	ARM Cortex A9	ARM Cortex A9
Processor max clock speed/ cores	1 GHz/1	1 GHz/1	1 GHz/1	800 Mhz/1	1 GHz/1	1 GHz/1	1 GHz/2	1 GHz/2
SoC	N.A.	N.A.	OMAP3621 with PowerVR SGX 540	Snapdragon with Adreno 220	OMAP3621 with PowerVR SGX 540	N.A.	OMAP4430 with PowerVR SGX 540	Tegra 2
RAM	512 MB	512 MB	512 MB	512 MB	512 MB	512 MB	1 GB	1 GB
Display size (in Inches)/ type/ resolution	7/TFT LCD/480 x 800	7/TFT LCD/480 x 800	7/TFT LCD/800 x 600	7/TFT LCD/800 x 480	7/TFT LCD/480 x 800	10.1/TFT LCD/1024 x 768	7/TFT LCD/1024 x 600	10.1/TFT LCD/1280 x 800
Internal Storage space	4 GB	8 GB	512 MB	1 GB	8 GB	4 GB	16 GB	16 GB
Expandable Memory (Y/N)/Expandable Memory type	Y/microSD	Y/microSD	Y/microSD	Y/microSD	Y/microSD	N/None	N/N	Y/microSD
Wi-Fi (Y/N)/3G (Y/N)	Y/Y	Y/Y	Y/N	Y/Y (Reliance network locked)	Y/Y	Y/Optional	N/N	Y/N
Battery rating (mAh)	4000	2200	3300	3400	4400	3500	5300	3260
Dimensions (in mm)/Weight (in gms)	193 x 117 x 14/400	209 x 108 x 15.5/500	192 x 137 x 14.1/483	N.A./389	N.A/N.A.	/795	194 x 130 x 10/425	260 x 177 x 13.3/730
Features								
Operating System (tested with)	Android 2.3.3	Android 2.2.2	Android 2.3.1	Android 2.3.4	Android 2.3.1	Android 2.3.1	BlackBerry Tablet OS 1.08.4985	Android 3.2
HDMI out (Y/N)	Y	N	N	N	Y	Y	Y	Y
Front Camera resolution (MP)/Rear Camera resolution (MP)	1.3/N.A.	2/2	0.3/3	0.3/2	2/N.A.	2/2	3/5	2/5
Customised application store	N	N	1Mobile Market & ViewApps	Rworld	N	N	BlackBerry Market	Gameloft Store + TegraZone
Build Quality rating (out of 10)								
Panel material used type (plastic, metal etc.)	Plastic	Plastic and Metal	Plastic	Plastic	Plastic	Plastic	Plastic	Plastic & aluminum
Majority colour used	Black & white	Black & Silver	White	Silver	Black & white	Black	Black	Silver
Finish type (glossy/matte)	Matte	Matte	Matte	Brushed	Matte	Matte	Matte	Brushed
Performance (out of 10)								
On-screen keypad layout/comfort of use	5.5	6	6	6	6	6	8	8.5
Display brightness/Display viewing angles	6/5	6.5/6	6/6.5	6.5/7	6.5/6	6/5.5	8/7	8/6
Display colour depth/even-ness	6	6.5	6	6.5	6.5	6	7.5	8
Video playback quality	5.5	6.5	6.5	6	6	6	8	7
Camera picture quality/Camera video quality	5/5	5/5	5.5/5	6/5	5/5	5/5	6.5/7	6.5/6
Speaker clarity/Speaker loudness	6/5.5	5/5.5	6/6	6.5/6.5	6/6	5.5/6.5	7.5/6.5	6.5/7
Benchmarks/Real world tests								
Startup time (switch on till lock screen - in Minutes)	00:32.4	00:39.5	00:28.3	00:31.8	00:39.2	01:31.9	01:07.1	00:29.1
Quadrant Benchmark	992	804	1369	907	1672	1297	N.A	1888
AnTuTu Benchmark	2055	2524	2703	1449	3048	2005	N.A	4884
LinPack Benchmark (single thread) MFLOPS	15.13	35.04	16.09	9.3	17.44	10.24	N.A	36.24
LinPack Benchmark (multi thread) MFLOPS	14.34	31.69	13.96	8.1	15.71	13.25	N.A	62.14
GLBenchmark Egypt Standard (Frames)	1529	925	N.A.	858	2411	1928	N.A	1972
GLBenchmark PRO Standard (Frames)	982	254	N.A.	326	2240	1267	N.A	1328
PeaceKeeper	No Score	171	No Score	No Score	162	No Score	No Score	339

EDITOR'S PICK digit JANUARY 2012 | BEST BUY digit JANUARY 2012 | BEST PERFORMER digit JANUARY 2012

TABLETS ABOVE ₹20,001

Apple	Sony	Lenovo	Asus	Acer	Samsung	Asus	Apple	Motorola
iPad 2 (Wi-Fi)	**Tablet S**	**IdeaPad K1**	**Eee Pad Transformer**	**Iconia Tab A501**	**Galaxy Tab 750**	**Eee Pad Slider**	**iPad 2 (Wi-Fi + 3G)**	**Xoom**
₹29,500	**₹29,990**	**₹29,990**	**₹32,999**	**₹34,900**	**₹36,200**	**₹36,999**	**₹36,900**	**₹35,000**
₹34,500 (32GB) ₹39,500 (64GB)	**₹33,990 (Wi-Fi + 3G - 16GB version)**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**N.A.**	**₹41,900 (32GB) ₹46,900 (64GB)**	**N.A.**
₹29,390	**₹29,990**	**₹28,800**	**₹30,990**	**₹34,400**	**₹34000**	**N.A.**	**₹32,990 onwards**	
Unmatched performance, superb battery life, best in class display	Unique design, lightweight, slick custom UI, PlayStation certification, Universal remote app	Lots of pre-loaded apps, performance good for the most part	Feels more expensive than it actually is, dock adds a lot of functionality	Good display, now gets latest Android version	Slimmer and lighter than the iPad 2, Good performance	Integrated keypad is a value add	Unmatched performancem, Superb battery life, best in class display	Unique design elements, well built
Heavily dependent on iTunes, limited native video support	Glossy body prone to scratches, waiting on gaming potential to be unleashed	Poor build quality, heats up a bit	None	Heavy, reflective display	Cant beat iOS for smoothness	Roughly built, pricey	Heavily dependent on iTunes, limited native video support	Heavy, glossy body, disappointing battery
29.9	16.43	20.11	20.94	19.68	20.06	16.97	29.65	18.3
19.12	18.09	19.63	20.93	19.06	18.69	17.58	19.51	19.91
25.5	23.1	22.65	22.05	22.8	22.65	22.05	25.5	21.9
74.51	57.62	62.39	63.92	61.54	61.4	56.6	74.66	60.1
ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9	ARM Cortex A9
1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2	1 GHz/2
A5 with PowerVR SGX543MP2	Tegra 2	Tegra 2	Tegra 2	Tegra 2	Tegra 2	Tegra 2	A5 with PowerVR SGX543MP2	Tegra 2
512 MB	1 GB	1 GB	1 GB	1 GB	1 GB	1 GB	512 MB	1 GB
9.7/IPS LED /1024 x 768	9.4/LED TruBlack/1280 x 800	10.1/TFT LED/1280 x 800	10.1/IPS LED/1280 x 800	10.1/TFT LCD/1280 x 800	10.1/TFT LCD/1280 x 800	10.1/IPS LED/1280 x 800	9.7/IPS LED /1024 x 768	10.1/TFT LCD/1280 x 800
16 GB	16 GB	32 GB	16 GB	16 GB	16 GB	16 GB	16 GB	32 GB
N/N	Y/SD card slot	Y/microSD	Y/microSD	Y/microSD	N/None	N/None	N/N	Y/microSD
Y/N	Y/N	Y/Y	Y/Y	Y/Y	Y/Y	Y/N	Y/Y	Y/Y
6930	5000	7400	3300	3260	7000	2260	6930	6400
241.2 x 185.7 x 8.8/601	241.2 x 174.3 x 10.1-20.6/598	264 x 189 x 13.3/771	271 x 171 x 13/680	260 x 177 x 13.3/730	256.7 x 175.3 x 8.6/565	273 x 180.3 x 17.3/960	241.2 x 185.7 x 8.8/607	249.1 x 167.8 x 12.9/730
iOS 5.0.1	Android 3.2.1	Android 3.1	Android 3.2.1	Android 3.2	Android 3.1	Android 3.1	iOS 5.0.1	Android 3.2
Y (with separate adapter)	N	Y	Y	Y	Y	Y	Y (with separate adapter)	Y
0.3/0.7	0.3/5	2/5	1.2/5	2/5	2/3.15	1.2/5	0.3/0.7	2/5
Apple App Store	Sony Select App	Lenovo App Shop	N	Gameloft Store + TegraZone	Samsung App	N	Apple App Store	N
Aluminum	Plastic	Plastic with leather casing	Plastic	Plastic & aluminum	Plastic	Plastic	Aluminum	Plastic & aluminum
Silver	Black	Black & grey	Golden brown	Silver	White	Silver & Brown	Silver	
Brushed / Metallic	Glossy	Matte	Matte with imprint design	Brushed	Glossy	Matte/ Rubberised	Brushed / Metallic	Matte/ Brushed / Metallic
8.5	8.5	7.5	8	8.5	8	8	8.5	8
9/7.5	8.5/6	7.5/7	8.5/6.5	8/6	8.5/6.5	8.5/6.5	9/7.5	8/6.5
8.5	7.5	7	7.5	8	8	7.5	8.5	7.5
8	7	7	7	7	7.5	7	8	7
6/6.5	6.5/6.5	6.5/6	6.5/6.5	6.5/6	6.5/6	6.5/6.5	6/6.5	6.5/6.5
8/8.5	7/7	7/6	7/7.5	6.5/7	7/7	6.5/7	8/8.5	7/7.5
00:22.8	00:28.0	00:18.2	00:21.5	00:29.1	00:29.3	00:21.4	00:22.8	00:36.3
N.A.	1539	1662	1570	1888	2033	1543	N.A.	1404
N.A.	4905	4901	5011	4884	4856	4922	N.A.	5260
242.5	29.18	28.79	27.44	36.24	27.9	28.79	242.5	30.69
892	56.37	53.78	53.78	62.14	51.96	57.46	892	55.35
6027	1878	1499	1976	1972	1969	1848	6027	1529
2953	1411	1207	1408	1328	1417	1455	2953	1222
384	No Score	361	319	339	285	No Score	384	285

No real plan
Nokia admits that it doesn't really have a plan for tablet devices in place

Voice control added
LG adds voice control to the Magic Remotes for the Smart TV range



Sony Tablet S

the device. However, the potential is immense. Expect Sony to port most of its PSP titles to the tablet soon, making the Tablet S the first real gaming tablet in the market. The universal remote is a huge value addition, thanks to the integrated RF sensor. Battery life is quite handy as well, it will last about six hours of continuous video viewing. For the light "coffee table" usage pattern, this should last a handful of days on a single charge.


Lenovo IdeaPad K1

Considerably surprising is the solid performance of the Lenovo IdeaPad K1. The benchmarks indicated reasonably quick performance, and even in real life that was the case. Among all the tablets in this shootout, the K1 had the quickest boost time – about 18 seconds. Damn impressive, and the K1 just builds on from there. Its 10.1-inch display doesn't have the colour vividness of an iPad or a Galaxy Tab, but the display looks crisp and clean. Brightness levels aren't the brightest around, but sufficient enough for most usage scenarios. Lenovo hasn't said anything about when the K1 will be updated from Android 3.1 to Android 3.2. The UI treatment done over Android is quite profound. Multiple shortcuts and a dock have been added, just to reduce the number of clicks to get to the oft-used apps: browser, media, etc. Lenovo has preloaded about 30 games and apps on the K1, and that just helps with the use-straight-out-of-the-box scenario. However, we did notice some chinks in the K1's armor. It has the habit of sometimes not responding while waking up from sleep. Multiple stabs at the button elicit a response. Secondly, 20 minutes of web browsing will be enough to really warm up a part of the rear panel. And the build quality is a huge disappointment. The plastic doesn't look or feel very high quality, and suffers from flex issues towards the middle of the rear panel. For someone spending close to ₹30k for a tablet, this kind of build quality may just be a huge deal breaker.

Moving on to a tablet that feels well built, the Asus Transformer. The Waveface UI is an extremely neat one, and we must commend the excellent 10.1-inch IPS LED display for making it look so good! Speaking of which, the sharpness was more than welcome when watching videos and really helps when reading text. At 680 grams, the Transformer isn't the lightest tablet around, but when coupled with 13mm thickness, it's very comfortable to hold for long durations. We've been noticing on various shopping web sites that the keyboard dock is being bundled free with the Transformer. In that case, this makes an excellent package. Once docked, it looks like a netbook to someone who may not have seen the tablet individually. The keys on the dock are very comfortable to use, and feels just like a proper laptop keyboard, complete with the touchpad and palm rest areas. The built-in battery on this dock enhances the backup time on offer. The Transformer seems to have everything going for it – good performance, classy build and looks and a dock that makes it an excellent netbook alternative.


Acer Iconia A501



ASUS EeePad Transformer

The only enhancement the Acer Iconia A501 gets over the Iconia A500 is the 3G SIM card slot. And a slightly higher price tag! We have absolutely no hesitation in recommending this for a consideration, particularly after the Android 3.2 update. It does have a lot going for it, namely performance and a decent battery life. The 3G version appeals to someone who wants connectivity on the move.

Now we talk about possibly the most aggressive of the iPad rivals to have arrived in the market this year – the Samsung Galaxy Tab 750. At 8.6mm, it managed to be slimmer than the iPad 2 (8.8mm)! And the plastic body helped it to be lighter as well. When it arrived in the market, it was by far the quickest Android tablet to rival the Apple masterpiece. However, the sheen seems to have come off since then. The Asus Eee Pad Transformer, the Acer Iconia A501 and even the Sony Tablet S, to a certain extent, have matched that performance. This one is no longer the real iPad 2 rival. But that shouldn't take any credit away from an excellent package. The build quality is really good, even though the use of plastic throughout takes away



Samsung Galaxy Tab 750

some class from a tablet that is quite expensive. Performance-wise, this one doesn't seem to witness any slowdowns, even with multiple apps open in the background. The TouchWiz UI doesn't really add any features, except minor eye candy. The dock at the bottom of the display reminds us of the Apple vs. Samsung lawsuits! Having said that, the Tab 750's display is an all rounder – handles videos, text and web browsing with equal aplomb. In a nutshell, the Tab 750 may not be the flamboyant alternative to the iPad anymore, but is a very competitive Android tablet nevertheless.

Whether this is a masterstroke, or an absolute disaster, only time will tell. But the Asus Eee Pad Slider does bring a combo to the table that will appeal to the demographic that cant do without a hardware keypad while typing mails and messages. Slightly pricey admittedly, it seems like a poorer cousin of the Eee Pad Transformer – with a smaller battery (despite the same screen size) and an older version of Android (still stuck on Android 3.1). Performance-wise, the Transformer again takes the lead. The Slider's build quality is quite solid, but seems to have a bit of roughness about it. The pop-out keypad's mechanism is hard at best. The materials used give it a dull aura. While this one looks like a unique package, the Transformer is a better (and a lower priced) alternative. Even more so, if you find the "dock included free" deal.



Asus Eee Pad Slider

Motorola's Xoom now feels old, and there's no getting around that fact. At the turn of 2011, the Xoom was the snazziest of all Android tablets that seemed to be rolling out by the dozen. However, about 12 months later, the Xoom feels heavy, the UI isn't unique anymore and other tablets offer better battery life. Credit where it is due, though: the Xoom still doesn't feel outdated as far as performance is concerned. It didn't score very highly in our performance tests, but was a solid mid-field runner. And you get 32GB storage built-in, while most of the rivals seem to be offering only 16GB versions.



Motorola Xoom

Winners

We weren't surprised, and we guess you won't be either. Ladies and gentlemen, give a round of applause to the Apple iPad 2 (Wi-Fi + 3G), which wins our performance crown. While this win was much expected, it becomes even sweeter for the second gen iPad. Quite clearly, the iOS 5 + hardware + service ecosystem that Apple so clearly controls with an iron fist has worked well. The performance is unparalleled, as the benchmark scores prove, and it has by far the best battery life across the table. And it does all that while keeping itself slim and looking stunning. Drawbacks are there though – it's tied to iTunes, limited native video codec support and some apps that are free on Android are paid on the iOS platform. But the sheer volume and variety of accessories proves the fact that this device is very well supported. We believe this offers the best performance package. Android has to try all over again in 2012.

Our Best Buy goes to the Asus Eee Pad Transformer which is a unique proof-of-concept, marrying the elements of a tablet with a netbook. The result is quite simply a one-of-a-kind experience that other tablets don't provide and can't match right now.

What to expect in the coming year?

Well, expect the tablet bar to be raised considerably with the iPad 3. The current 9.7-inch version will definitely be upgraded with the same display size. Rumours are strong about a 7-inch version as well, but we'll take that with a pinch of salt at the moment. Android's assault should continue, but will totally depend on whether the tablets can catch up to the sheer performance advantage that the iPads seem to have at the moment. RIM has confirmed that we'll see version 2.0 of its Tablet OS in the first quarter, bringing a native email client and possibly even BBM. Whether that revives RIM's fortunes depends on how much of an upgrade that upgrade is! Microsoft will unleash its tablet OS later this year, so expect Windows 8 on the tablet roadmap. We're hearing that Nokia and Samsung will be launching Windows 8 based tablets post June 2012. That should shake up the market nicely.



Apple iPad 2 (Wi-Fi + 3G)

Watch TV on your Android tablet
When connected to a Slingbox 120 or PRO-HD, the SlingPlayer Android app lets you watch your home TV on a tablet running Android version 3.0 or later

Galaxy Gets Ice Cream
Samsung will roll out Android 4.0 ICS update in Q1 2012, to S II, Note, Tab 10.1, Tab 8.9, and others
http://bit.ly/seLmKf

It's a bird, it's a plane, it's Thunderbolt!

The Pegasus R6 is an exhibition of blitzkriegingly fast transfer speeds



The Pegasus R6 may look like any other multi-drive external storage device (NAS), but the Thunderbolt port that lurks inside it makes it completely different. The six 1TB 3.5-inch hard disks that comes bundled with the Pegasus R6 run at 7200rpm.

Out of the box these drives are setup on RAID 5. Since the Pegasus R6 comes with two Mini Display Ports, you can use the second Mini Display Port to daisy chain with other Thunderbolt devices without hindering the connection bandwidth or use it to connect a Mini Display Monitor at the end of it.

The Pegasus R6's chassis is made out of aluminum, thus marking a close resemblance to the MacBook lineup and the iMac. The front of the Pegasus R6 houses six 3.5-inch full sized 1TB hard drives. The whole NAS setup is very well-built and feels rock solid.

The six bays are very easy to load and eject. A glossy black strip on the left of the six bays holds the main power button, and sports two Thunderbolt LED indicators each for the six bays; they indicate the status and activity of the respective drives. On the rear of the Pegasus R6, you get two Thunderbolt ports, a serial port and the power cable slot. You also find two fans on the back of the Pegasus R6, they help keep the Pegasus R6 PSU cool. The Pegasus R6 has a very sturdy build quality, rock solid almost.

On the MacBook Air (SSD) with the Pegasus R6 drives set on RAID 0, we got an average read speed of 264 MB/sec and an average write speed of 241 MB/sec, which means a 2.12 GB (assorted) file got transferred from the MacBook Air to Pegasus R6 in just 8.7 secs, while a 2.11GB of sequential file took 7.87 secs and transferring from Pegasus R6 to MacBook Air, the 2.12GB (assorted) got done in 9.18secs and the 2.11GB (sequential) file got done in 8.58secs. Further, we also tested the internal transfer speeds of the Pegasus R6. With two 3TB RAID 0 hard drives set up, we transferred our test files. We got an impressive average read and write speed of 354 MB/sec. The 2.12GB (assorted) file transfer got done in 7.71secs, while the 2.11GB (sequential) file got done in 6.5 secs. When we ran the AJA System test to test the speed with a 4K video file on the MacBook Air (SSD) with the Pegasus R6 in RAID 0 we got an impressive write speed of 737MB/s and read speed of 636MB/sec. Seriously fast!

Without any doubt, the Pegasus R6 is the fastest external multi-drive storage device we have tested so far. The Pegasus R6 is capable of delivering speeds unheard of but for now the internal drives aren't yet capable of driving Thunderbolt speeds - bottleneck is inevitable. However, the biggest let down of the Pegasus R6 is its asking price. So if you are someone who spends a lot of time doing video editing or photo editing it's a great device to consider. And for those of you who are speed fanatics and are gifted with deep pockets, the Pegasus R6 won't disappoint you. For the rest of us, we will have to wait till its price drops.

Aniruddh Subramanian



Specifications

Drive capacity: 6TB; **Spin speed:** 7200rpm **RAID:** 0, 1, 5, 50, 6, 60, 10; **Connectivity:** 2 x Thunderbolt ports

Contact

Promise Technology, Inc
Phone: +1 (408) 228-1400
Email: sales@promise.com
Price: ₹95,000

8.5/10

Features	7.5
Performance	9.0
Build Quality	8.5
Value for Money	7.0



Tiny newspapers
Little Printer prints tiny personalised ticker tape "newspapers" among other things
http://bit.ly/tDmSvy

Build your own mini-robot
My Robot Nation lets you build your own servant..err, we mean mini-robot
http://bit.ly/tJZAd5

BitFenix Colossus

The latest LAN Party bling

BitFenix Colossus is one cabinet that exudes attitude the moment you power it on. Thanks to the slits in the cabinet's front and side panels which get illuminated with LEDs. You can change the colour of these LEDs from red to green and vice versa. The chassis comes with a soft-touch finish which prevents fingerprints, has two USB 3.0 ports, two USB 2.0 ports and an eSATA port on the top portion, alongwith power, PWM fan controller, and light controller. The top bay can be locked to protect unauthorised access.

Great build quality teamed with soft touch finish on the front and top and anodized metal finish on the sides. Lots of space for wire management which is good. Toolless design is another favourable aspect.

Considering it is a closed cabinet (LEDs on the side panels) with no rear fan, things get slightly hotter as compared to competing cabinets. We got a temperature delta of 55 degrees for the processor and a GPU delta of 58.9 degrees Celcius.

This is an ideal cabinet for LAN party enthusiasts. The option to change the LED light colours, fan speed and provision for locking the top bay are quite good. The 5 ODD bays, 7 HDD bays and 8 expansion slots are quite enough for your needs. You will need to invest in a rear fan though, as the unit we got did not have one. The soft-touch surface is smudge-free which is quite good. External cable management teamed with the security lock is a great feature. At ₹11,250 it may be priced higher, but very few cabinets on the market offer as many features and bling factors.



Nimish Sawant

Specifications

Form Factor: ATX Full Tower; **Drive Bays:** 5x5.25-inch, 7x3.5-inch; **Fans:** 1x230mm front, 1x230mm top; USB 3.0 **Slots:** 2

Contact

Xtreme Grafix
Phone: +91 22 2770 1140
Email: sales@xtremegx.com
Website: www.xtremegx.com
Price: ₹11,250

7.5/10

Features	8.0
Performance	6.5
Build Quality	7.5
Value for Money	6.5

Blackberry Curve 9380

Great touchscreen BB at the price

Specifications

Processor: 806 MHz single core; **RAM**: 512MB; **Screen**: 3.2-inch capacitive touchscreen; **Resolution**: 480 x 360 pixels; **Expansion**: microSD slot up to 32GB; **Camera**: 5MP; **Battery**: 1230 mAh; **OS**: Blackberry 7 OS

Contact

Research In Motion
Phone: 18004253730
Email: tssasiapac@rim.com
Price: ₹20,990

7.0/10

Features	7.0
Performance	6.5
Build Quality	7.5
Value for Money	7.0

The form factor of the Curve 9380 is essentially the same as the Torch 9860, just a tad smaller. The four keys below the touchscreen—call connect, disconnect, menu and return—have a nice feel to them and overall the Curve 9380 is built very well. The phone's side opening mechanism of the cover is a bit of a pain, though. Overall, the phone feels slightly classier and expensive than the actual price tag. Even though Curve phones have traditionally been far behind the Bold series in terms of build quality and looks, this phone definitely seems to blur those lines.



The phone's 3.2-inch display is quite impressive. With a 480 x 360 pixel resolution, it does well as far as crispness is concerned. Even at 30% brightness, it is enough for most indoor situations. In bright sunlight, reading text isn't really a problem. We were very impressed with clarity of text rendering on web pages as well, and the smoothness of the zoom-in and zoom-out effect. The only real area where this display disappoints is in colour depth. Image quality of the 5MP camera is satisfactory, but even the slightest bit of shake will ensure blurred and noisy shots.

While it feels a bit weird to use a Blackberry without a trademark QWERTY keypad, this one does quite well on the touchscreen front. The OS 7 still requires some fine-tuning. But, this is the touchscreen only Blackberry to buy.

Please go online to read the detailed review of the Blackberry Curve 9380 smartphone. Click this link: bit.ly/txMfFM

Vishal Mathur

The dark side of gadget addiction
In his new drama series, Black Mirror, Charlie Brooker explores the dark side of our love affair with technology
http://bit.ly/tCM0bt

A rose by any other name...
Apple may have to sell its product under a new name in China or part with $1.6 billion
http://bit.ly/vaQY5i

Samsung Galaxy Note

Is it a phone? Or is it a tablet? Feel free...

In a world that is still grappling with the idea of how the smartphone and the tablets will co-exist, Samsung has decided to introduce a completely new category - the hybrid. So where does the Samsung Galaxy Note fit in?

Till now we had considered the 4.0-inch display smartphones as big, but this one with the 5.3-inch display just puts them in the shade. Quite literally! Despite the bigger footprint, it doesn't weigh too much, and manages to remain quite slim as well. The build quality is very good. There aren't any rough edges to the product. The very fact that you can type an SMS with the same hand that is holding the phone is a huge achievement in itself.



The crowning glory is the 5.3-inch Super AMOLED display. The first thing we noticed when comparing it to the Samsung Galaxy SII is that the colour richness has been toned down. Good thing, since the red colour isn't overbearing anymore. The black levels are excellent, and don't look grey anymore. The sharpness levels helps a lot making the text clear. The viewing angles of this display aren't great - let down by the reflective nature. Any and all ambient objects will be reflecting off the display, if you look at it from a side angle.

The video viewing experience is an absolute delight. While watching a video or listening to music, you will get the 5.1 channel setting activated only if you are using headphones or connected the phone to external speakers. The built-in speaker isn't loud at all. In fact, it is barely enough for a small-ish room. Take it outside for a call or to listen to music, and it is barely audible. Read detailed review online: bit.ly/trErnx

Vishal Mathur

Specifications

Android 2.3.5; ARM Cortex A9 Dual Core 1.4GHz processor; 1GB RAM; 5.3-inch Super AMOLED display; 1280 x 800 pixel resolution; 16GB internal storage; microSD slot (up to 32GB); 8MP camera with 1080p HD videos; 2500 mAh battery

Contact

Samsung India
Phone: (Prefix Local STD Code) 3030 8282
Email: N.A.
Price: ₹34,990

8.0/10

Features	8.0
Performance	9.0
Build Quality	7.5
Value for Money	7.5

ASUS X79 Rampage IV Extreme

ROG series on steroids with OC Key and SubZero Sense

Specifications

Form Factor: Extended ATX; **Chipset:** Intel X79; **DIMM slots:** 8; **Back Panel Ports:** 4xUSB 3.0, 7xUSB 2.0, 2xeSATA, 1xLAN port; **Expansion slots:** 5xPCIe 3.0, 1xPCIe 2.0; **SATA 6 Gbps ports:** 4

Contact

ASUS Technology Pvt. Ltd.
Phone: 1800 209 0365
Email: reachus@asus.com
Website: www.asus.in
Price: ₹28,650

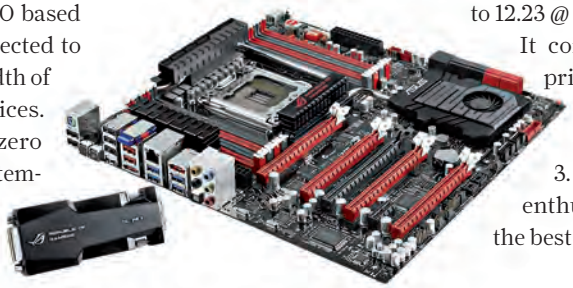
8.0/10

Features	8.5
Performance	8.0
Build Quality	8.0
Value for Money	7.5

Republic of Gamers series is associated with serious gaming. With the launch of Intel Sandy Bridge E series of processors, motherboards housing the X79 chipset have started to flood the market. Rampage IV Extreme (R4E) is the flagship board from ASUS and its packed with features.

This board comes with PCIe 3.0 certification which means that it will run PCIe 3.0 based devices which are expected to have twice the bandwidth of existing PCIe 2.0 devices. With the ASUS Subzero Sense, you can get the temperature on your CPU as well as GPU with the help of the Subzero Sense connector. The UEFI BIOS has implemented a shortcut key ie. F3. On any screen in the UEFI BIOS, you can press F3 to access the list of most commonly used tweaking options.

OC Key – which is a piece of hardware that goes into your graphics card display port while you can connect your DVI cable on its outer edge. A wire goes from the OC Key to the motherboard and on pressing the ROG button, you get a graphical overlay on the monitor, which allows you to monitor and adjust CPU and GPU voltages – in real time!



The easy overclocking utility within the ASUS Suite II allows you to speed up the Core i7-3960X to 4.125 GHz and 4.25 GHz. We tried both settings and it works quite well. Cinebench R11.5 went from 11.35 @3.3 GHz to 12.23 @ 4.25 GHz.

It comes at a premium price of Rs. 28,650 and it also bundles in the game Battlefield 3. If you are a gaming enthusiast, this board is the best X79 board.

Nimish Sawant

Blackberry Torch 9860

Is well built, and provides great value for the money

RIM, with a complete touchscreen smartphone - this should be fun! Are you listening, Storm 2?

The 9860 is made with a mixture of plastic and metal. While most of the body is plastic, the battery panel and the chrome border do add that metallic touch. There are literally no rough edges that we can nitpick. Even the battery opening mechanism is a delight to use - press the button in the centre, and the door pops out!

A 1.4GHz processor is powering the Torch with 768MB of RAM. Flicking through the UI was a smooth experience, and we didn't notice any stutters.

As we have said before, the 3.7-inch display does look bigger than it actually is. Impressive display quality - crisp and adequate brightness levels. Speaking of which, brightness at 40% is more than enough to read text in the sunlight.



Unfortunately, the web browser is disappointing. On a lot of occasions, a link you click on will not actually respond. You need to select the link, long press and wait for a pop up to click Select.

The 5MP camera does do a very good job as far as picture quality is concerned, including in low light conditions. Take a picture of the skyline at night and the evenness of the lighting and colour was surprising.

The 1230 mAh battery lasts a day and a half. RIM says that OS 7 is better optimized and consumes much less battery, but this phone could do with a bigger battery.

The Torch 9860 simply showcases how far RIM has come from the days of the hateful SurePress. A touchscreen that works, a sleek form factor and a decent power package - things are quite rosy.

Vishal Mathur

Specifications

Single core 1.4GHz processor, 768MB RAM, 3.7 inch display, 480x800 resolution, 2.5GB internal storage, microSD card slot, 5MP camera with 720p HD video, 1230mAh battery

Contact

Blackberry
Email: tssasiapac@rim.com
Phone: 18004253720
Price: ₹28,490

7.5/10

Features	7.5
Performance	7.0
Build Quality	8.0
Value for Money	8.0

Nokia Lumia 800

The first Windows Phone device from Nokia is promising

Specifications

Qualcomm MSM8255 Snapdragon 1.4GHz processor; 512MB RAM; Windows Phone 7.5; 3.7-inch AMOLED display, 480 x 800 pixels; 16GB storage; 8MP camera with 720p HD videos; micro SIM slot only; 1450 mAh battery

Contact

Nokia India
Phone: +91 (city code) 30303838
Email: http://www.nokia.co.in/support/ask-nokia
Price: 29,990

7.5/10

Features	7.5
Performance	8.0
Build Quality	8.0
Value for Money	6.5

The Lumia 800 feels good to hold, and a sophisticated and minimalist look. Powering it is a Qualcomm Snapdragon MSM8255 1.4GHz processor with 512MB RAM. The interface is zippy, transitions are silky smooth and the phone doesn't slow down at all.

The 3.7-inch display is the AMOLED type with 480 x 800 resolution. It isn't reflective. The rich colours and the deep blacks mean that viewing videos or reading text is fun. There is 16GB on board storage on the Lumia 800, but no memory expansion slot.

Contact handling has been improved extensively with the Mango update. Now, you can even transfer all contacts from any phone to the Lumia via Bluetooth. We tried this with a Blackberry phone, and all 750 contacts were transferred to the People list on the Lumia, complete with any tagged images.



The 8MP camera is extremely finicky when it comes to lighting. The camera takes time to focus, particularly when taking close-up shots.

The battery life of the Lumia 800 is impressive. Despite constant connectivity to the Internet, a bunch of calls, messages, and lots of web browsing, the battery lasted 2 full days on a single charge.

It was a long wait for the first Nokia smartphone with Windows Phone OS. And we believe that wait has been a long but successful one. The Lumia 800 seems to be a well designed package - looks far superior than any other WP phone out there, excellent display, good battery life and WP 7.5 is thrashing Android's ageing UI hands down.

Vishal Mathur

Fast and Furious no more
Algorithm predicts which cars are most likely to run red lights
http://bit.ly/uiC1U2



Honda 3R-C
A minimalist urban electric vehicle for one person.
http://bit.ly/rQ8aDl

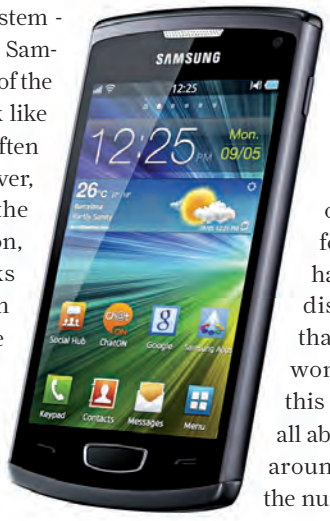
Samsung Wave III (S8600)

Very good hardware, performance; OS isn't the best

The Wave III does seem to have a classy look and a solid build quality. Quite helped by the chassis that is made mostly of metal. The 9mm thickness and 122 grams of weight isn't bad considering this smartphone falls in the big screen category.

It is powered by a 1.4GHz processor and paired with 512MB of RAM. The 4GB of internal storage with a microSD card slot handles the storage need. The 4.0-inch Super AMOLED display has a very good brightness. The crispness of the text is a huge bonus, and added to that is the slightly bigger font sizes, when compared to Android.

The most important ingredient of this particular dish is the operating system - Bada 2.0 version. Samsung's treatment of the OS makes it look like Android more often than not. However, comparing to the previous version, Bada 2.0 looks and feels much better to use. The 5MP camera can record 720p videos. The picture quality is quite good, with no noise in good light. Videos are smooth, but suffer jerks in panned shots.



The 1500mAh battery does tend to hold up quite well. You should get about 2 days on a single charge, with EDGE/Wi-Fi on.

No doubt the S8600 has excellent specs on paper, performs well and has a very good display. Beyond that, you are left wondering what this smartphone is all about. Is Bada just around to make up the numbers? We suggest you buy the golden oldie - the Samsung Galaxy S (Android) or the Samsung Omnia W (WP Mango). Read the detailed review: bit.ly/tHQ4i7

Vishal Mathur

Specifications

Bada 2.0 OS, 1.4GHz single core processor, 512MB RAM, 4.0-inch display, 480 x 800 pixel resolution, 4GB internal memory, memory card slot (up to 32GB), 1500mAh battery

Contact

Samsung India
Phone: (Prefix Local STD Code) 3030 8282
Email: N.A.
Price: ₹19,600

7.0/10

Features	6.5
Performance	8.0
Build Quality	8.0
Value for Money	6.5

Vu 55-inch Super TV

A 3D TV with an in-built computer

Vu 55-inch 3D LED backlit LCD Super TV also houses a computer within it - an Intel Core i3 processor based Windows 7 OS housing system with 500 GB storage.

The widescreen TV has a 1080p native resolution and it supports a 400HZ refresh rate which is more than enough for 3D viewing.

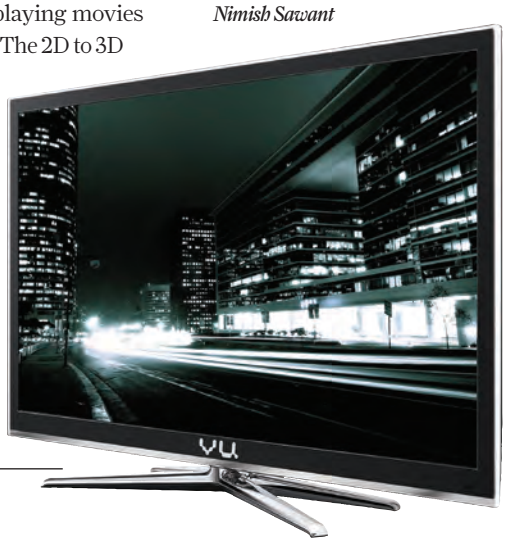
Navigating the menus is a breeze but we found the user interface to be a huge letdown. Same goes for the remote control, usage is easy, but build quality, certainly not the best. The computer is a separate entity from the TV and you cannot record TV shows onto the 500 GB hard drive.

We found the contrast ratio to be around 502:1 on our Spyder-3Elite colorimeter test. The black luminance levels at 0.65 cd/m^2 was not very good. It suffers from noticeable backlight bleeding.

HD movies viewing experience was quite good, but the blacks are not very deep. We did not notice any issues with playing movies off the USB drive. The 2D to 3D conversion does not really add any value to the viewing experience and as for 3D viewing, well it still has to evolve. For the inbuilt computer you have a dedicated mouse/trackpad combo that connects with the TV via bluetooth.

For a price tag of ₹1,29,000 it is priced at a premium. It comes packed with features, but the performance of the TV is not the best. Around ₹1,00,000 – 1,10,000 it 's good buy.

Nimish Sawant



Specifications

Screen size: 55-inch; **Refresh Rate:** 400 Hz; **Resolution:** 1920x1080; **Inputs:** 1xComposite, 1xVGA, 4xHDMI, 1xComponent, 2x USB; **Computer:** Intel Core i3 370M; 2GB RAM; 500 GB HDD; Win 7 Home Premium; Wireless RF Keyboard with Touchpad mouse

Contact

Vu Technologies
Email: techconcierge@technologies.vu
Web site: www.technologies.vu
Contact: 1800 228 455
Price: ₹1,29,000

6.5/10

Features	7.5
Performance	6.5
Build Quality	7.0
Value for Money	5.5

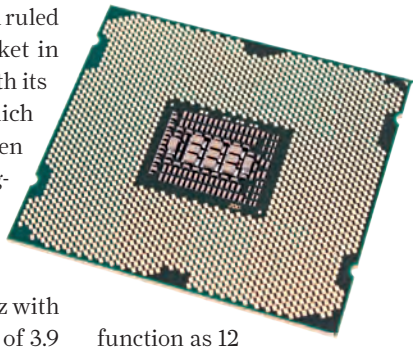


BMW in the scooter market
Two premium scooters and an electric version in the offing
http://bit.ly/vMJwVp

Huawei Honor in February
Huawei Honor is reportedly arriving in India by February 2012, with an Android 4.0 ICS update onboard.
http://bit.ly/suaZv2

Intel Core i7-3960X

The Bugatti Veyron of desktop processors



Intel has pretty much ruled the processor market in the year gone by with its Core i7-2600K, which could not be defeated even by the eight-core AMD flagship FX-8150. The Sandy Bridge E processor – the Core i7-3960X running at a clock speed of 3.3 GHz with a max Turbo frequency of 3.9 GHz, with a shared L3 cache of 15MB, looks great on paper. There are lot of common aspects from the Sandy Bridge microarchitecture that have been carried forward. A base clock BCLK running at 100 MHz which is also used by the integrated memory controller, system agent, etc. There are a total of six active cores on the die, which function as 12 threads thanks to Intel Hyperthreading. You will need a new socket – LGA 2011 to house the SBE processor and the motherboard with the X79 chipset.

Prominent by its absence is the integrated graphics die, which also lets go of the Quick Sync Video transcoding feature.

We tested the processor on an ASUS Rampage IV Extreme board with Kingston 8 GB DDR3 RAM, AMD HD 6850 graphics card and a Cooler Master GX 650W power supply. Performance scores were insane. Cinebench R11.5 gave a score of 11.27 as compared with 5.96 of the AMD FX-8150 and 6.79 of Core i7-2600K. X264 HD encoding at 720p gave a whopping 58.47FPS (FX-8150 @ 36.76). WinRAR compression/decompression happened at 4282 KB/s up from 3505 KB/s of the 2600K.

If multi-threaded applications is what you use, this is the best processor for it. At ₹58,000 it is only meant for extreme power users and professionals. But worth every single penny.

Nimish Sawant

Specifications

Clock Speed: 3.3GHz; **No.of cores:** 6; **Socket:** LGA 2011; **TDP:** 130W; **Lithography:** 32nm

Contact

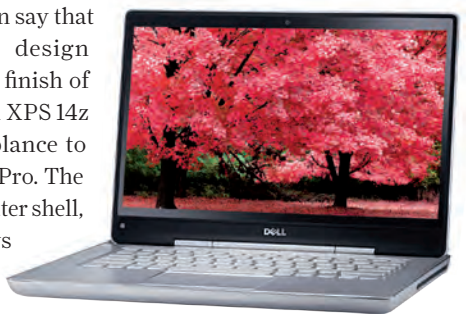
Intel
Web site: www.intel.com
Email: sasupport@mailbox.intel.com
Contact: N.A.
Price: ₹58,000

9.0/10

Features	8.0
Performance	9.0
Build Quality	0.0
Value for Money	8.0

Dell XPS 14z

Style, elegance, and power packed performance



We can say that the design and finish of Dell XPS 14z sees a stark resemblance to the Apple MacBook Pro. The smooth aluminum outer shell, the small arrow keys and the keyboard flanking speakers are all reminiscent of the Apple MacBook Pro. The Dell XPS 14z laptop has a pretty study build thanks to the aluminum and magnesium body. The Dell XPS 14z's chiclet styled keyboard is a treat to type with. The backlight is not only at the edges of the keys but also the letters are backlight too. The large trackpad is quite sensitive and ensures easy navigation. The mouse buttons too are discrete and give good tactile feedback. Dell has managed to nail the typing and navigating experience on the Dell XPS 14z.

The Dell XPS 14z laptop sports an LG Shuriken display, which crams a 14-inch display into 13-inch form factor; the display is edge-to-edge resulting in a very thin black bezel. However, the resolution on the Dell XPS 14z is a let down at a disappointing 1366 x 768. Connectivity ports provided are sufficient but the placement of the ports would leave many people miffed. The PC Mark Vantage score was 7675, the 3D Mark 06 score was 5394. An attractive design, above-average performance and good battery life makes the Dell XPS 14z laptop one of the better notebooks available in the market now. Had Dell packed in a better display, the Dell XPS 14z would have been a serious competitor to the likes of MacBook Pro 13-inch. Having said that, the Dell XPS 14z will have no problems handling your day-to-day tasks and with discrete graphics it has enough grunt for light gamers.

Aniruddh Subramanian

Specifications

Screen: 14-inch display, 1366x768 resolution / **CPU:** 2.8-GHz i7- 2640M / **RAM:** 8 GB DDR3 / **HDD:** 750 GB / **GPU:** NVIDIA GeForce GT 520M / **OS:** Windows 7 Ultimate / **Ports:** 1 x USB 2.0, 1 x USB 3.0, HDMI, Mini Display Port, card reader, ethernet, optical drive, headphone, mic / **Weight:** 2.03-kg

Contact

Dell India Pvt. Ltd.
Website: www.dell.co.in
Phone: 1800 425 4047
Price: ₹66,900

7.0/10

Features	7.0
Performance	8.0
Build Quality	7.0
Value for Money	6.0

Google's search results history

A short history of the evolution of search, highlighting some important milestones
http://bit.ly/tLnjWs

Bazaar mini

QUICK INSIGHTS FROM INDEPTH TESTS

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests, and is finally given a verdict. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

1.0 - 3.0 - Extremely poor product. Keep away!
3.5 - 5.0 - Strictly OK. Not recommended
5.5 - 6.5 - Decent product. Go for it, but there may be better products out there.
7.0 - 8.5 - Very good product. Highly recommended.
9.0-10.0 - Ground-breaking product. We've never seen anything like it before. A definite must buy!



MOTHERBOARD



MSI 990FXA-GD80

Price: ₹14,500

SPECIFICATIONS

Chipset	990FX / SB950
PCIe x16 slots	4
USB ports	2x USB 3.0, 4x USB 2.0
eSATA ports	2

TEST CENTRE RATINGS (All Scores out of 10)

Features 7.0
This MSI board supports SLI as well as Crossfire. It has the OC Genie II one touch overclocking utility, USB 3.0 support and six SATA 6 Gbps ports.

Performance 7.5
PC Mark Vantage Overall: 10685; Cinebench R11.5 CPU(all cores): 5.96; File Transfer (Sequential / Assorted in MB/s): 55.58 / 48.05

Build Quality..... 8.0
Sturdy heatsinks, military standard components like solid state caps.

Value for Money..... 6.0
At ₹14,500 the price of this motherboard is expensive.

WE SAY

7.0

MSI 990FXA GD80 is a great board for enthusiasts who want to exploit the latest FX series of processors and who want a multi GPU setup. SLI support is a definite add-on. The UEFI BIOS looks really good and you can also tweak settings from the OS enviornment.
Using the OC Genie II we were able to overclock the processor from 3.6GHz to 4.0 GHz. Presence of the POST code LED is thoughtful. But at Rs. 14,500 we find it hard to recommend the GD80 as ASUS Crosshair V Formula is just a ₹1,000 more and it is much more feature rich than the GD80.

EXTERNAL HDD



Seagate GoFlex 3 TB

Price: ₹13,000

SPECIFICATIONS

Capacity	3 TB
Interface	USB 2.0
Rotational Speed	7200 RPM
Weight	1.08 kg

TEST CENTRE RATINGS (All Scores out of 10)

Features..... 6.0
Allows easy backup of data and encryption with the Seagate Dashboard. It is upgradeable to USB 3.0 and FireWire 800 adapters with compatible cables.

Performance 6.0
Sequential Read / Write (MB/s): 32.47 / 29.18 MB/s; Assorted Read /Write (MB/s): 31.35 / 23.04 MB/s

Build Quality..... 6.0
Sturdy build. The HDD is not very stable in the vertical position.

Value for Money..... 5.0
For ₹13,000 this external hard drive is priced on the higher side.

WE SAY

6.0

Seagate GoFlex Desk 3TB offers humoungous capacity and its speeds are at par with competing USB 2.0 drives. But HDD pricing has gone up across the market, so this drive which was available at around ₹8,800 till around September has shot up to ₹13,000. With this pricing the least one can expect is a USB 3.0 adapter out of the box. We would advise you to wait till the prices drop and also invest in a USB 3.0 adapter if possible. Another interesting aspect of the adapter is its usability with internal HDDs including laptop HDDs which makes the drives plug and play devices.

Samsung goes Dual-SIM

Samsung has announced Galaxy Y Duos and Galaxy Y Pro Duos smartphones, having Android 2.3 and an 830 MHz processor

Aakash for ₹1138 only

Mumbai college students will be soon given the Aakash tablet at a subsidised price of ₹1,138. Interested?

BLUETOOTH HEADSET



Bose Bluetooth headset Series 2
Price: ₹8,888

SPEAKER



Bose SoundLink Wireless Mobile Speaker
Price: ₹19,013 and ₹23,513 (LX version)

PMP



Sony E363 Walkman
Price: ₹4,990

BLUETOOTH HEADSET



Creative WP 250
Price: ₹3,599

SPECIFICATIONS

Type	In-ear	Portable speaker, Bluetooth and aux connectivity, neodymium speakers, dual opposing subwoofers, integrated cover and grille, built-in rechargeable battery, 1.3kg	
Bluetooth Profile	A2DP		
Talk Time	4.5 hrs		
Standby Time	100 hrs		
		Memory	4 GB
		FM Tuner	Yes
		Display	2-inch TFT
		Weight	55g
Type	In-ear		
Impedance	32 Ohms		
Wireless Technology	Bluetooth v2.1		
Charging time	Upto 2 hrs		

TEST CENTRE RATINGS (All scores out of 10)

Features 7.0
Adaptive Audio and Noise reduction really helps with the call clarity at all times.

Performance 8.5
Extremely good call clarity at all times and an excellent battery life ensure that you won't miss your smartphone's earpiece too much!

Build Quality 8.0
Available in left ear or right ear options, extremely comfortable to wear for long durations.

Value for Money 6.5
Slightly pricey, but being a Bose product, that was expected.

Features 8.0
Bluetooth connectivity as well as the 3.5mm audio input means most devices will seamlessly handshake with this speaker.

Performance 8.5
Unbelievably good audio clarity, and the bass thump was surprising. Hook up process was simple.

Build Quality 8.0
Has integrated the protective case as well as the stand quite uniquely.

Value for Money 7.0
Pricey, for what is essentially an iPod speaker. But quality and performance bits are up there.

Features 7.5
E363 does has audio and video playback, picture viewer, a good display and even FM Radio.

Performance 7.5
Can't really find any fault with the media playback. The key layout is a bit confusing, and can become a mess to use it in the dark. Doesn't play back most video formats though

Build Quality 7.0
Good build quality, with no rough edges. Feels somewhat plasticky.

Value for money 7.5
At ₹4990, it is totally worth considering at this price.

Features 7.0
Creative WP 250 features neodymium drivers housed in an in-ear, over the neck designed headphones.

Performance 6.0
We did not experience any dropped calls or change in music quality while jogging with the headset on. Volume is low. Ear fatigue is quite noticeable after 45 mins of usage.

Build Quality 6.0
The build quality is quite sturdy but ergonomics could have been better. Settling the in-ears is a task.

Value for money 6.0
It is priced on the higher side.

WE SAY

7.5

Like we have mentioned earlier, there really isn't a question of yes or no. if you need a Bluetooth headset for your phone, and have this within budget, it is a matter of when rather than if - to buy this. We regularly got between 4 hours and 6 hours of battery backup from a single charge, full charge to full discharge. It is better than the Jabra 2.

ALSO SEE:
1) **Plantronics M100**
May 2011
2) **Jabra Wave**
May 2011
3) **Jabra Stone 2**
October 2011

8.0

The clarity and loudness was quite amazing, and this one has more than enough punch to be clearly audible in a room as big as a large sized living room, let alone a small bedroom. The bass thump was the most surprising bit, and the dual opposing subwoofers do their job well. Two is clearly better than one, if you are a bass addict. In this case, the opposing bit has been crucial, since it is removing the vibrations we normally associate with bass. Look, there is no doubt that this is on the expensive side. But then again, it is miles ahead of any rival, both in terms of performance as well as the quality of the product.

7.5

At a price of just under ₹5,000, the E363 Walkman does offer a good value for money proposition, if you aren't really looking for the ultimate video playback solution. Audio playback and FM reception is very good. The equalizer settings can be tweaked easily. Deserves a better pair of earphones though, than the ones that come with it. The battery life was quite good as well.

ALSO SEE:
1) **Apple iPod Shuffle**
January 2011
2) **Apple iPod Nano**
January 2011

6.0

The WP 250 is quite sturdy and stays in place without any untoward movement while working out or jogging. There are volume control, mic and call accept button located on the right side of the headset. There are three silicone tips of varying sizes. But the driver section rest on your inner, as the wire section does not rest on your outer ear. This leads to ear-fatigue. Call quality or music quality does not deteriorate under active use, but the volume levels are quite low. It lasts for a good 5 hours on a single charge. Button placement on the drivers is quite intuitive. At ₹3,599 it is recommended for users who lead active lifestyles.

Solid State Shopping

Agent001 finds the best SSDs for various use-case scenarios



Agent 001
agent001@thinkdigit.com

Solid State Drives ,or SSDs, have been around for quite a while. The only reason they're not selling as high in volumes is because of the high cost per GB. Considering we're a price-conscious market, it's no surprise that I hear things like "Why should I spend 10,000 bucks on a 128 GB SSD when I can get a 1 TB HDD at that price?"

The problem lies with the perception that an SSD is just a speedier alternative to the humble HDD and when you go with that mindset to purchase an SSD, the pricing will obviously draw flak. So let's set the record straight – an SSD is primarily meant for faster access of data, and yes, it can store data, but it can't match the cost per GB offered by mechanical drives. So think of an SSD as an addition to your traditional HDD, unless you have money to burn.

An SSD uses NAND- based flash memory which retains data even without power and that's how it's distinguished from the conventional HDD. An SSD uses microchips that retains data in non-volatile memory chips containing no moving parts. Most importantly, the data flow is controlled by a central controller chip, and naturally different controller chips offer vastly different performances. Initially, there were only two controller manufacturers namely Intel and Indilinx but there are many more now – Jmicron, Toshiba, Marvell, SandForce and Samsung among others.

Team Digit members wanted to upgrade their systems, so keeping their requirements in mind, I headed out to Lamington Road to enquire about SSDs.

Team member: Nimish
Requirement: Boot drive
Budget: Around ₹5,000

Nimish doesn't want to spend much considering he has a mid-range system at home. So he's only looking for an SSD that will have his Windows installation and some essential utilities. For such usage, the maximum limit should be around 64 GB just to have enough space if you want to add your Office and security suites. Kingston SSDNow V100 64 GB drive offers good value for money at ₹5,500. The other drive I came across was Corsair Nova Series 40 GB SSD at ₹4,500. While the Kingston drive houses the Toshiba JMF618 controller, the Corsair one uses an Indilinx controller. Both these drives support TRIM, which is very important for any SSD purchase, as it doesn't affect the write speeds once all the blocks are full of data and data needs to be written over a block.



Kingston HyperX 240GB

Team member: Jayesh
Requirement: Boot drive for his games
Budget: Around ₹12,000

Jayesh is a gamer and can't wait for the slow loading times offered by his 5400 RPM drive to end. He wants to invest in an SSD that will double up as his boot drive and hold some of his favourite heavy games. So the capacity I was looking at was around 128 GB, as that will give him enough space for the OS, the essential utilities and his game collection. Corsair Force GT 120GB at ₹10,000 is a good bet and it also won our Best Performer award in October 2011. It has the fast SandForce SF2281 controller which not only gives great read speeds, but also great sequential write speeds. And it has a SATA 6 Gbps interface. Its competitor, the Kingston SSDNow V+ 100 was selling for around ₹11,000. This is also a great SSD, but has a comparitively slower Toshiba controller. OCZ Agility 3 120GB drive at ₹11,200 is another SATA 3 interface drive with the SandForce SF2281 controller, so great performance is expected. Game loading times with these drives is much more speedier than on a regular HDD.

Team Member: Robert
Requirement: Single performance drive
Budget: Around ₹30,000

Robert is a power user and despite using Velociraptors in RAID 0, he still feels that his system is slow. He willing to forego terabyte capacities, as long as he gets a blazingly fast SSD. Since he uses a lot of heavy applications such as Adobe's Creative Suite and also games in his free time, the drive needs decent capacity.

Kingston's HyperX 240GB SSD is the first thing I looked for, as that was our Zero1 Award winner last year. One of the fastest and highest capacity SSDs we tested in our labs. Corsair Force GT 240 GB drive, the higher capacity version of Corsair Force GT 120GB was selling for ₹29,000. The other drive we came across was OCZ Vertex 3 SATA 6 Gbps drive which was slightly over our budget at ₹33,000.

So those were the drives I found were good enough for the respective use case scenarios. But you may have noticed Intel's Z68 boards advertising about the Intel Smart Response Technology, which allows you to use an SSD in a RAID combination with your HDD such that your SSD can be used as cache memory, enabling quick access of most frequently used applications. Since there's a cap of 64 GB for Intel SRT, we would suggest going for any of the drives if you belong to the first category.

HD webcam for ₹2k

I'm looking for a decent HD webcam for my laptop with internet connection @2mbps in India. My budget range is a maximum of ₹3,500. Please suggest a good HD webcam. Also, any suggestion on where to get a good deal to buy it would be very appreciated.

Nirav



You can buy the Microsoft Lifecam HD 3000 web camera for around ₹1,700 on flipkart.com. It lets you shoot sharp 720p HD video at 16:9 widescreen cinematic aspect ratio. It's full integration with Windows Live, makes uploading, tagging and sharing easy.

Android or Windows Phone 7?

I just want a superb rugged mobile. At present, I use Nokia N95 and N97. I have 3G MTNL connection of which I make full use, by downloading content and music. Same for all the features of these phones. What's the difference between Android and Windows Phone? Which one is more superior? Which OS should I opt for? I've come across Nokia Lumia 800, Dell Venue Pro and Dell Streak 5. I need a phone which is fast and preferably Windows 7.5 with ample memory or support for memory card. What's the difference between a tablet and a smartphone / mobile and which one should I go for? I'm new to it and hence asking you. Do I go for a tablet when I have a laptop or mobiles such as N95 and 97?

You can suggest from the above mentioned phones or any other phones you find may be suitable for me. I'd also consider a functionality such as a computer in the new phone. Do you have any reviews about the phones which you'll be suggesting; if yes then please send me the links so I too can see for myself? I really thank you very much for your noble work helping people understand the knowledge about technology and much more.

Dr Niranjan Wagh

We'll take your questions one at a time

Android vs. Windows Phone OS.

Windows Phone is a relatively new operating system, whereas Android has been around for quite a while. So naturally, Android has more applications than Windows Phone. But with Windows Phone OS you can sync your MS Office, MS Outlook files and even your XBox live account. Each platform has its own set of advantages and disadvantages, so it's not fair to say one OS is superior to the other. It all boils down to your use-case scenario.

Windows Phone 7.5 suggestion

Windows Phone 7.5, also known as the Mango update, is the latest OS. There are some phones in the market that already sport that OS. We've reviewed two of them:

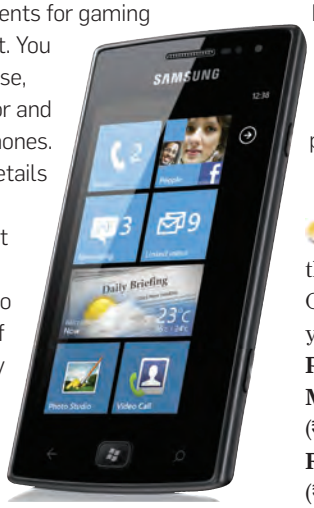
HTC Radar: http://www.thinkdigit.com/Mobiles-PDAs/HTC-Radar-Review_8056.html

Samsung Omnia W: http://www.thinkdigit.com/Mobiles-PDAs/Samsung-Omnia-W-Review_7979.html

Both of them are good phones but the Samsung edges past as it has a better pricing and much better screen.

Upgrade for frequent gamer

I'm a quite a frequent gamer and now fed up of my current PC. I now want to totally rebuild my rig to the max extent that my budget of ₹50k can support. Please advice the best components for gaming under this budget. You can exclude mouse, keyboard, monitor and speakers/headphones. Please provide details for every component from cabinet to processor to UPS (you can also exclude cabinet if you think that my present cabinet can house the components you advice). Please also mention their individual prices and where to buy them from, preferably online. My present configuration is:



Processor: Pentium 4~ 2GHZ
RAM: Kingston DDR2 2x2GB
Graphics: Onboard Intel Graphics
HDD: 160GB WD Sata HDD

Rohit Chauhan

Config for mid-level gaming:
Processor: Intel Core i5 2320 (₹9300)
Motherboard: MSI H67MA-E35 B3 (₹4600)
RAM: Corsair Vengeance 4GB DDR3 (₹1850)
HDD: Seagate 500 GB (₹4900)
Graphics Card: MSI N550GTX Ti (₹7500)
Cabinet: CM Elite 430 (₹2700)
PSU: Cooler Master eXtreme Power Plus 500W (₹3025)
UPS: APC BR600CI (₹2165)
Check for prices on smcinternational.in, primeabgb.com, ebay.in, etc.

A gaming laptop or even PC

I've been planning to buy a gaming PC, but can't make decide whether to go for a laptop (HP Dv6 6121tx) with proper cooling solutions, or just build a custom PC with little or no cooling other than some stock fans. They say that laptops cost you double the price for half the performance and bust out after a year. So I'm a little worried about that, because you don't buy a ₹55k product everyday. I won't game or use my PC for more than 3-4 hours, that too solely for gaming. Now, if you suggest a laptop, then it's okay, I will arrange for proper cooling solutions, but if you say "go for a PC" I'd like your help building one within the same budget.

P.S. I live in Lucknow which is extremely hot most of the year, so I prefer an Intel i7 config rather than an AMD config, which are also known to heat up a lot without pricey cooling solutions.

Anonymous

Considering your budget, a PC rather than laptop makes sense as most hardcore Core i7 based gaming laptops cost more than your budget. Config for the PC:
Processor: Intel Core i5-2500K (₹11,900)
Motherboard: Asus P8Z68-M PRO B3 (₹8,900)
RAM: Corsair Vengeance 4 GB DDR3 (₹1,850)
HDD: Seagate 500GB (₹4500)
Graphics Card: Galaxy GTX 560 (₹10,290)
Monitor: Samsung P2350 (₹10,800)
Mouse: Logitech MX518 (₹1200)
Keyboard: Logitech K100 (₹265)
Cabinet: Cooler Master CM Elite 430 (₹2700)
PSU: Cooler Master eXtreme Power Plus 600W (₹3,600)

App for Women's Safety
Whypoll has launched an app for women that allows them to immediately alert friends or family if they are at risk
http://bit.ly/sK323D

Nokia Belle Anyone?
In a blog post, the Finnish company announced that latest version of Symbian OS will now be called Nokia Belle
http://bit.ly/u6GOkB

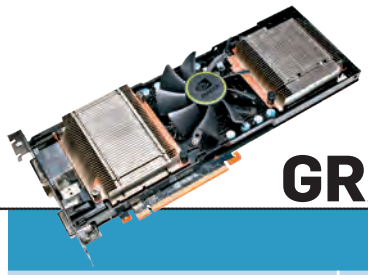
SPEND SMART

Updated prices of top Cabinets, monitors, DSLRs, All-in-ones and hard drives from Digit Test Labs



SMARTPHONES

Name	OS	Processor	RAM	Screen Size	Camera	Price
Samsung Omnia W	WP7.5	1.4GHz Scorpion	512MB	3.7" AMOLED	5MP / Flash	20000
Nokia Lumia 800	WP7.5	1.4GHz Scorpion	512MB	3.7" Clear Black (AMOLED)	8MP / Dual Flash	29000
Samsung Wave III	BADA OS v2.0	1.4GHz Scorpion	512MB	4" AMOLED	5MP / Flash	19600
HTC Radar	WP7.5	1GHz Scorpion	512MB	3.8" S-LCD	5MP / Flash	24000
Samsung Galaxy Note	Android 2.3.5	1.4GHZ Cortex A9	1GB	5.3" Super AMOLED	8MP / Flash	35000
Blackberry Torch 9820	BB OS7	1.2GHz	768MB	3.7" TFT LCD	5MP	28000
HTC EVO 3D	Android 2.3	1.2GHz	1GB	4.3" 3D LCD	5MP / Flash	36000



GRAPHICS CARDS

G Cards	Stream Processors	Memory / Bandwidth	Core / Shader Clock (MHz)	Price
Zotac GTX590	512 x2	1707 / 384 x2	607 / 1215	44000
HIS HD6990	1536 x2	1250 / 256 x2	830 / NA	48000
ASUS ROG GTX580	512	1002 / 384	816 / 1544	29000
XFX HD6450 rs.2650	160	533 / 64	625 / NA	2700
MSI N550 GTX-Ti Rs.7700	192	1075 / 192	950 / 1900	8000
Galaxy GTX560 Rs.10290	336	1002 / 256	810 / 1620	10500
EVGA GTX560Ti Rs.14750	384	1100 / 256	900 / 1800	15000

3G roaming barred
TRAI has asked operators to discontinue the roaming agreements, and threatened to impose hefty penalties as well
http://bit.ly/ul2tyS

Aakash tablet delivery delayed
According to recent reports, DataWind is scheduled to start distribution of the Aakash tablet only in January
http://bit.ly/tG6Emt



SSD

SSD	Capacity (formatted)	Controller	Cost/gb	Price
Kingston HyperX 240GB	223.5	SandForce	71.6	16000
Corsair Force GT 120 GB	120	SandForce	241.7	29000
Kingston SSDNow V+100 64 GB	59.3	Toshiba JMF618	92.7	5500
ADATA S596 64GB	59.3	JMicron JMF616	84.3	5000
OCZ Vertex 3 240gb	223.5	SandForce	147.7	33000



Z68 BOARDS

Z68	PCIe	DIMM	SATA ports	USB	Price
ASUS ROG Maximus IV Gene Z	2xPCIe 2.0 x16	4x2200MHz	2xSATA3 + 4xSATA2	4xUSB 3, 12xUSB 2	14000
ASRock Z68 Extreme3 Gen3	2xPCIe 3.0 x16	4x2133MHz	2xSATA3 + 4xSATA2	2xUSB 3, 4xUSB 2 + headers	9000
ASUS P8Z68 V - PRO	2xPCIe 2.0 x16	4x2200MHz	2xSATA3 + 4xSATA2	4xUSB 3, 12xUSB 2	15000
ASROCK Z68 Extreme 7 Gen 3	5xPCIe 2.0 x16	4x2133MHz	6xSATA3 + 4xSATA2	4xUSB 3, 2xUSB 2 + headers	20000
ASUS ROG Maximus IV Extreme Z	4xPCIe 2.0 x16	4x2200MHz	2xSATA3 + 4xSATA2	10xUSB3, 9xUSB2	27000



A75 MOTHERBOARDS

A75 boards	Expansion slots	DIMM	SATA ports	USB	Price
ASUS Crosshair V formula	3xPCIe 2.0 x16	4x2133MHz	6xSATA3	6xUSB 3, 12xUSB 2	17000
ASRock A75 Extreme 6	3xPCIe 2.0 x16	4x2400MHz	8xSATA3	4xUSB 3, 2xUSB 2 + headers	7500
ASUS F1A75-V PRO	2xPCIe 2.0 x16	4x2250MHz	7xSATA3	6xUSB 3, 10xUSB 2	8648
Gigabyte A75-D3H	1xPCIe 2.0 x16	4x2400MHz	5xSATA3	6xUSB 3, 10xUSB 2	7000
ASRock A75 Pro4-M	2xPCIe 2.0 x16	4x2400MHz	5xSATA3	4xUSB 3, 2xUSB 2 + headers	6000

digit KILLER RIGS

Everything you'll ever need to build your own PC. Whatever your budget.

Basic rig = ₹19,815 | HTPC = ₹21,600 | Entry Level Gaming = ₹35,525 | Mid-Range Gaming = ₹55,030 | Ultra high-end = ₹1,65,520

BASIC RIG

Processor	AMD Athlon 2 x2 260	3100
Motherboard	GIGABYTE GA-MA78LMT-S2	2600
RAM	Corsair Desktop RAM 2GB DDR3 1333MHz	700
HDD	Seagate 500GB 7200.12	4900
Monitor	BenQ G610HDAL	3800
Graphics Card	None	0
Cabinet	Cooler Master Elite 310	1500
PSU	VIP 350W	800
Speaker	Altec Classic Audio BXR1221	1000
Mouse	Zebronics Judwaa 5 (Bundle)	0
Optical Drive	LG 22x SATA DVD Writer	950
Keyboard	Zebronics Judwaa 5 (Bundle)	465
Sound Card	None	0
Total		**19815**

HTPC

Processor	MSI E350IA-E45	8000
Motherboard	Bundled	0
RAM	Corsair 2GB DDR3 1333MHz	700
HDD	Seagate Barracuda 2 TB	7200
Monitor	None (your TV)	0
Graphics Card	None (HD6310 onboard)	0
Cabinet	Zebronics Tambi	2000
PSU	Bundled (150W)	0
Speaker	None	0
Mouse	MS Wireless laser Combo XVA-00020	2750
Keyboard	Bundled	0
Optical Drive	LG 22x SATA DVD Writer	950
Sound Card	None	0
Total		**21600**

ENTRY LEVEL GAMING

Processor	AMD Athlon II x4 635	4000
Motherboard	GIGABYTE GA-MA78LMT-S2	2600
RAM	Corsair XMS3 2x 2 GB DDR3 1333 MHz	1400
HDD	500 GB WD Caviar Blue	4900
Monitor	BenQ G2220	7200
Graphics Card	Asus 550Ti	8400
Cabinet	CM Elite 310	1500
PSU	Corsair CX430	2200
Speaker	Altec Lansing V2621	1960
Mouse	Zebronics Judwaa 5 (Bundle)	0
Optical Drive	LG 22x SATA DVD Writer	900
Keyboard	Zebronics Judwaa 5 (Bundle)	465
Sound Card	None	0
Total		35525

MID-RANGE GAMING

Processor	Intel Core i5-2320	9300
Motherboard	MSI-H67 MA-E35	4700
RAM	Corsair 2x2GB DDR3 CMX4GX3M2A1600C9	1900
HDD	Seagate 7200.12 1tb	5800
Monitor	Samsung P2350	10800
Graphics Card	Galaxy GTX 560	10300
Cabinet	CM Elite 430	2620
PSU	Corsair GS 600	4000
Speaker	Altec Lansing V2621	1960
Mouse	Razer Abyssus (bundled)	0
Optical Drive	LG 22x SATA DVD Writer	950
Keyboard	Razer Cyclosa (Bundled)	2700
Sound Card	None	0
Total		55030

ULTRA HIGH END

ULTRA HIGH END		
Processor	Intel Core i7-2600K	17500
Motherboard	ASUS Maximus IV Extreme Z	26220
RAM	G.Skill Ripjaws (2x4) 8GBXL	2800
HDD	2x Seagate 1 TB + Kingston 64 GB SSD	21000
Monitor	BenQ XL2410T	25000
Graphics Card	ZOTAC GTX580	28500
Cabinet	Cooler Master HAF922	6700
PSU	Seasonic X850 (80+ Gold)	9900
Speaker	Logitech Z506	6700
Mouse	Logitech G9x	5000
Optical Drive	LG 12x Blu-ray OEM RW	6500
Keyboard	Logitech G510	5000
Sound Card	ASUS Xonar DX 7.1	4700
Total		165520

OPTIONAL ACCESSORIES

OPTIONAL ACCESSORIES		
Speakers	Logitech Z5500	18500
Controller	Xbox Controller	1400
Controller	Logitech G25 Racing Wheel	17000
Webcam	Microsoft LifeCam HD	2000
Headset	Razer Carchiaras	3700
System Fans	Noctua NF-P12-1300 120mm Case Fan	950
System Fans	Noctua NF-P14 FLX 140mm Case Fan	1050
Sound Card	ASUS Xonar essence	9000



Anchors away at a cost

What to do when the charges they promised would not come, come

Kapil Rustagi
readersletters@thinkdigit.com

This content is brought to you by consumer mate Expert Buying Advice

We can help!
If you're facing a problem with your purchase, write to us at help@consumermate.com

Rohan Dogra, a young professional had just returned from his vacation in Spain. This time, he didn't have much to discuss with friends. With his BlackBerry, sharing pictures and experiences was so easy. Waiting for him back home, though, was a staggering bill from his service provider, who told an astonished Rohan that he'd been charged for data usage. Before leaving for abroad, he was informed by the service provider that no extra roaming charges would be levied for the same. He pointed this to the customer care executives, but all his requests fell on deaf years. To add salt to his wounds, they barred his outgoing calls initially and ultimately disconnected services due to non payment.

Excess billing is a common problem. Unfortunately, consumers have little resources or options to defend such unreasonable demands. They ultimately end up paying these unreasonable charges being left with no option. If the bill remains unpaid, a disconnection becomes a nuisance, especially for well circulated and old mobile numbers. In such a situation, the consumer should immediately and preferably, through email, register a complaint with the customer care and get a docket number. If unsatisfied with the customer care, the Nodal Officer (a statuary authority to deal with the consumer complaints) can be contacted. The outcome by the nodal officer can be challenged before the respective appellate authority. The addresses, contact numbers and email ids of nodal officers and appellate authorities are available on the service provider's web site. Consumers generally communicate with their service providers very casually, which ultimately proves to be ineffective. Emailing is a better way to interact with them; it can be helpful for establishing your case if matters go to any adjudicating authority.

Generally, it has been seen that companies settle the disputed amount for a maximum of half of the billed amount. But it does mean that every amount put to challenge can be settled for peanuts. Nevertheless, no company in any case can threaten you or intimidate you through outsider collection agents to pay the bill. If the collection agent abuses or threatens you, inform the police immediately. The companies can recover the outstanding through lawful means only.

COMPLAINTS RECEIVED

LAPTOPS

In three years all laptop parts have been changed; still it continues to give problems

I purchased a laptop from Lenovo 3000 series, model no.7761-1aq, serial no. MA5DL84 in 2008. In the period of three years of buying it, all the parts of the laptop have had to be changed because of a problem occurring a maximum of two times; it still isn't in working condition. I would not advise anyone to purchase any Lenovo product because of third-grade products. I feel like I've been made a fool by this international company. Be aware, I doubt they have any quality standards seeing that their only motive is to make sales.

Contacted By: *Ajit Kumar Asati*

Answer by Consumermate:

Dear Consumer,
We can understand your pain and disappointment. Thanks for sharing your inputs and experience about the product which would be beneficial to prospective consumers. You shouldn't feel disappointed and must take legal action against them for providing deficient services. At this stage, write a letter to them in the shape of a legal demand notice detailing all your problems. Please mention all relevant details of earlier job sheets. In case, they don't come up with a solution then you may go ahead with your complaint in the district consumer forum. I hope the company would realise the consumer needs and do the needful to provide proper consumer services so as to maintain its repute in the market. Please keep proper record of all the relevant documents which would be crucial in establishing your claim

Weak laptop battery after returning from the service centre

I had purchased a mini laptop Aspire d-225 last December. A few months back it showed some keyboard problem which was solved by the company. Now I guess they have changed my battery as it doesn't last as long as it did before. Now what should I do? It's still in warranty period. Battery condition is bad now after coming from service centre.

Contacted By: *Deepak Bhutani*

Answer by Consumermate:

Dear Consumer,
You should immediately write to the company about the faults you're coming across after the service. Please match the battery with some corresponding part of the machine; for example, you can match the serial number of the battery with the machine. Even if it isn't changed with someone else's product, you should report the battery problem to the service centre at the earliest. Please check your warranty status for the battery. If it's under warranty then they're duty bound to change it without any cost.

The Internet has you!



If you happen to be an internet addict there's not much you can do about it. You tend to spend a lot of time indoors and just hate the idea of stepping out. A broken net connection is worse than a zombie apocalypse for you which you'd miss because you'll be on the internet. Here are a few symptoms that tell you need immediate help and attention for the internet has you!

Weirdness level

Your level of weirdness goes up a notch, you do all kinds of stupid things, for example you start drawing stick figures side ways :-) <—< When searching for something in the house your first thought is to type it in the Google search bar





Humour level

LOL is the first thing which comes to your mind when you hear a joke. Your general humour level goes for a toss, when you crack a joke for your friends they don't get it because they're not in that culture

Social level

You know your twitter pals better than your actual friends. The idea of having fun on a Friday night is to have extended sessions on the internet planning tweet ups which never happen. Most of your tweets end with #ForeverAlone tag



Wi-Fi level

Your idea of going to a coffee shop depends on the fact whether they have a Wi-Fi connection or not. If a café doesn't provide a Wi-Fi connection you consider it an act of evil and head home immediately. You holiday spots are shortlisted on the fact whether the place has a number of Wi-Fi spots or not



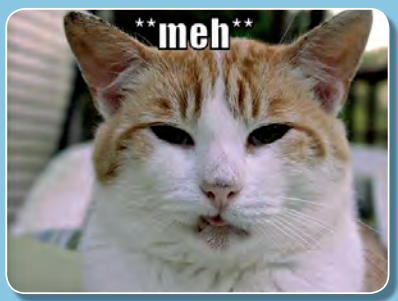


Virtual level

You own crime syndicates, extraordinary amounts of farms, pets, zoos and other such nonsensical stuff. You put hours of hard work and concentration on developing your character in second life which you know you'll eventually hate and delete

Interest level

Your general interest level in life and other things is almost non existent. You react to most new things and ideas by dropping in a simple 'meh'. You develop a hipster attitude where you find references for everything. To say the least you've become an internet slave, your universe has become the internet



Micromax A75 Superfone Lite

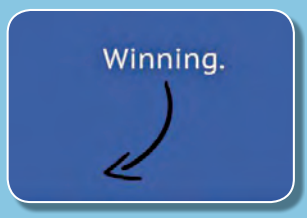
Micromax A75 Superfone Lite, featuring Android 2.3, and dual-SIM functionality, has been launched at ₹8,999
http://bit.ly/ssA9se

Sponsored News Feed?

Starting this month, Facebook will feature ads in the main news feed on its web portal
http://bit.ly/smN9dW

Spice up your Facebook cover

Here are three places on the web where you can find kick-ass covers for your Facebook profile



FB cover pix

www.fbcoverpix.com

You'll find some good compilation of FB covers here. The gallery of cover images is vast categorised in fourteen pages. The most popular image here is the one that says winning and points to your DP

SiteCanvas

thesitecanvas.com

SiteCanvas allows you to create a collage from your FB picture library so you can have your custom cover image. What's more is that there are 20 templates to choose from for your favourite collage





My FB covers

myfbcovers.com

So here's some incentive for creating a cover at myfbcovers.com. If your cover is the most downloaded image of the week, you stand a chance to win $50 in prize. Go create

digit DIARY

The night stays in office have become more fun than ever, all because of the 3 foldable mattresses Robert got for the team. Quake and Warcraft sessions have increased by two folds as we have more game enthusiasts among us. Both Aniruddh S and Jayesh were pretty pumped when the swanky 27 inch Mac display came to our test centre! Now when there's any 1080p clip that needs to be watched we all jump towards the screen to get a bite.

How we unwind



Flypaper

Our movie screening session which was a stalled activity for quite some time got revisited this past month with Flypaper. However the movie took the better of us towards the end where we were just waiting for it to get over

Joe Satriani

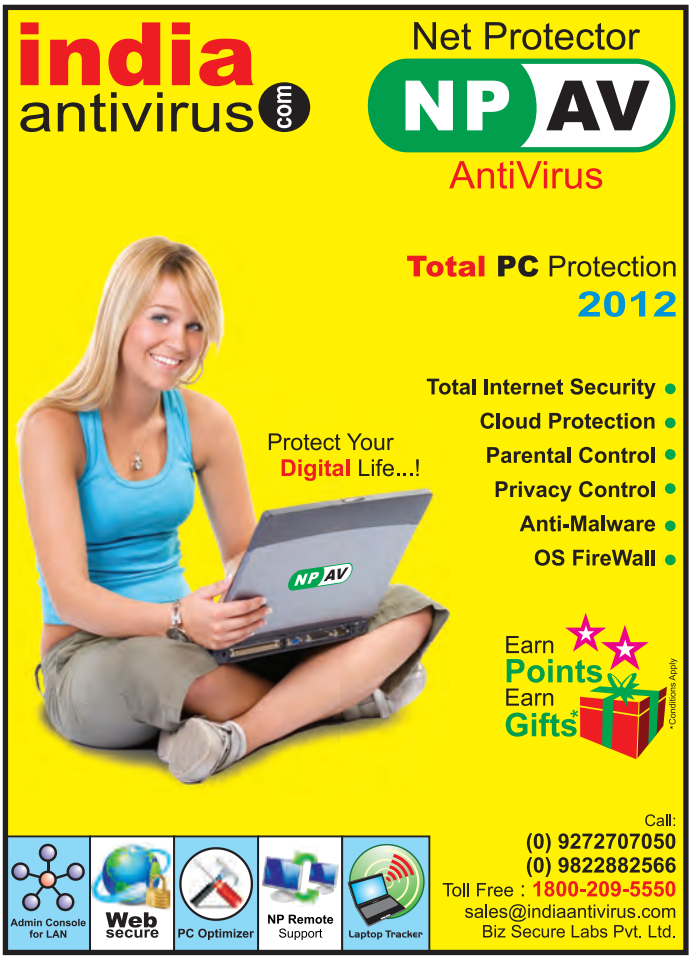


We grooved to the smooth tunes of Joe Sat this time. Most of us got back to his riffs after a long time which was quite a refreshing in a way. Our best songs by him are If I could fly, Surfing with the alien and Until we say goodbye



That 70s Show

For those of you who have enjoyed That 70s Show would know funny and addictive it is! We began our journey right from the pilot episode and intend to finish all the seasons by next time this month. Our favourite character is Fez!





ASSASSIN'S CREED REVELATIONS

So long and thanks for all the kills

Jait "Foxymoron" Dixit
readersletters@thinkdigit.com

Assassin's Creed Revelations bids a fond adieu to two legends and an era. You get to play all the three protagonists you've played till now i.e. Desmond Miles, the bartender turned assassin from New York; Ezio Auditore, the flamboyant and vindictive assassin from Florence and last but not the least Altair, the mentor and master assassin from Levant; all in this one game. Being the last game of the Altair-Ezio quadrilogy, it wraps up all the loose ends of both, Ezio's and Altair's story arcs, paving way for the next offering of the series.

The plot is filled to the brim and has more twists in it than a corkscrew. *Revelations* primarily unfolds in Constantinople under Ottoman rule at the cusp of the Renaissance. Among the three, Ezio's story is most compelling and takes up most of the game, who is at the same time battling both, mid-life crisis and the Templars. He goes to Constantinople to find five keys of Altair's lost library where he's thrust into the social and political turmoil in the region, which is closely associated with mission at hand. Then there are the brief interludes where you play Altair, reliving events occurring at different stages in his life. You can also play Desmond in a first-person platformer segment, which looks very Portal-esque (a part of you waits for the Handheld Portal Gun in the next room). You interact with the environment in a convoluted 3D-tetris sort of way, placing blocks to tackle the environment and in this process learn more about Desmond's life.

The core gameplay hasn't changed much though – you're still an assassin that stalks, meets, chases, stabs and kills people. There are a myriad of missions to choose from, but they tend to become repetitive after a while, though the Altair and Desmond segments break the monotony. A special mention of the beautifully crafted underground caverns, river chases and puzzle sequences before you find the keys, they look nothing short of grand. Then there's the "optional" Den Defense segment, where you stand on a roof and protect your den from Templar attacks, by directing your troops to proper positions. This is one place that the game fails miserably. Who in a sane frame of mind would want to settle for tactical gameplay, when there are so many people to be garroted.

Talking about newly introduced weapons, there's the hook blade, which coupled with zip-lines on buildings reportedly reduces the travelling time by 30 per cent; free-running just became much more interesting. You can use it to vault over enemies blocking your way, tackle enemies without killing them and of course still use it to stab people in the back. Then there are the bombs. The bomb crafting system allows the creation of about 300 different types of bombs, some of them particularly interesting – for instance, the stink bomb or the grisly, blood bomb. The premise is interesting but it isn't practical as counter kills and combo moves are much faster in dispatching enemies.

Graphics-wise, the game is good. Though, it does tend to blur in some places with discernible clipping. Overall, characters and environs are much more vivid and rich. The game has a brooding, sort of melancholic air about it. A special shout out to Constantinople, it's perhaps the best designed city till now. Vivid and colorful, it comes alive on the screen. The soundtrack is brilliant and perfectly in sync with the game.

A strong story line and gameplay has been. and is, the hallmark of this franchise. Though a more immersive and faster combat would have been welcome. A few shortcomings aside, this is a game definitely not be missed especially by AC fans who've followed Ezio's and Altair's life till now. You owe to yourself to see them through to the end. *

8

Genre: Third person action adventure, Sandox
Developer: Ubisoft Montreal
Price (PS3): ₹2375

WWE '12 – JUST BRING IT!

Aniruddh "DoubleDee" Subramanian
feedback@skoar.com

Wrestling game WWE '12 is developed by Yuke's and published by THQ. From WWF Smackdown to WWE Smackdown vs Raw and now to WWE, this becomes the first game under the WWE series. It's also the 14th game in the combined series. WWE '12 has been one of the much hyped games of the series and a game we've been eagerly waiting to get our hands on. So how does it stack up to all the hype? Let's find out.

WWE '12 sees some major highs and lows. Let's kick things off with the major highs of the game. When we witnessed Undertaker's entrance, we were absolutely speechless. The music, the pyro technique – the entire entrance package is so minutely perfected that sometimes it feels as if we're watching a live episode of WWE. The modeling of the wrestlers has become more refined and is almost perfect. It's by far the best-looking WWE game ever. There's no denying that we were absolutely blown away by its presentation. Further, the game brings a new animation system, what THQ calls as the "Predator Technology". The animations have become super fluid, thus making the game actions superfast and intense. The combat moves that wrestlers perform have become smoother and the combination moves seamlessly blend into each other so as to give one smooth action scene. The transition time between attacks and reversals is so less that it reminds us of the superfast *Smackdown: Here Comes the Pain*. At times the animations seem so fluid, that it feels surrealistic.

Another big addition to the game, which we give a big thumbs up to, is the new limb targeting system. The limb targeting system lets you deal damage to specific areas of the body. This is really useful if you're playing a wrestler with submission as his finisher. You can do some real damage to your opponent's legs or hands and then finish him off with your submission move. Damaging the head of the opponent will make him prone to be groggy, and thus let you perform more groggy grappling moves. However, this is where the goodies end. The gameplay is seriously flawed. The offensive gameplay is absolutely perfect – be it the offensive strikes, grapples or Irish whips – no complains here. It's the defensive gameplay i.e. the reversals that totally sucks. This is one of the most important aspects of the gameplay but we thoroughly hate the way it functions. To successfully perform a reversal move, you have to press the right button the very second the game prompts you to perform it. Even a split-second delay and you won't be able to pull of the reversals. The window of opportunity you get to perform these reversals can be deemed as nil and to add to your misery these reversals prompts don't appear with every move. After a point in the match – where you're being flogged by the AI who, by the way, can perform a reversal at his will – the lack of ease of performing a reversal makes the game extremely annoying to an extent where you feel like shutting it down. Another letdown is the game's story mode – The Road to Wrestlemania. You get to play three chapters, which revolves around Sheamus, Triple H and a custom wrestler you create; however, the matches aren't that stimulating and often carry strict objectives making it very difficult to play freely.

Few mentionable additions that make the gameplay somewhat better are the "Dynamic Comeback" feature and new wake up taunt. The "Dynamic Comeback" feature lets the losing superstars perform a few quick comeback attacks and avoid a pin. The new wake-up taunts bring a downed opponent to his feet for a finishing move; for e.g. Randy Orton bangs the stage prompting the opponent to get up and then delivers his finishing move, "RKO". The customisation options including creating wrestlers, arenas, moves, entrance sequences are almost endless, and this will be one of most loved features of the game. *

Verdict:

WWE '12, like we said, has some major highs and some major lows. The game without doubt nailed presentation and graphics. The endless customisation options will definitely consume a lot of your time and is a definite hit. However, the game fails to deliver the gameplay required to support such sublime presentation and graphics – the annoying reversal system totally destroys the otherwise perfect WWE experience. We really hope the next installment of the game rectifies this major flaw.

Ratings:

- Genre: Professional wrestling sports
- Developer: Yuke's
- Publisher: THQ
- Price: ₹2,399

THE SKOAR ! 7

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Lumia 800 battery glitch

Nokia says the battery issue in the Lumia 800 will have minimal impact in India, and is offering free replacement units
http://bit.ly/uPJOC8

Google+ finds your face

Google+ rolled out a facial recognition feature similar to a Facebook's auto-tagging feature.
http://bit.ly/rJw0ou



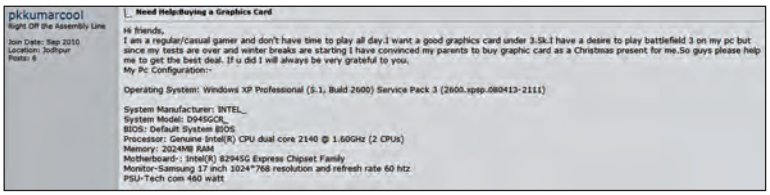
Guess the games!

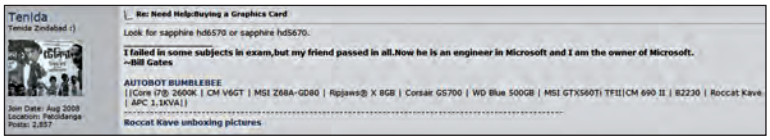
We clicked this picture where Jayesh and Aniruddh S are shown playing games. We posted it on our Facebook page and asked our readers to guess which games these were. Some of you came up with interesting responses. Here they are:

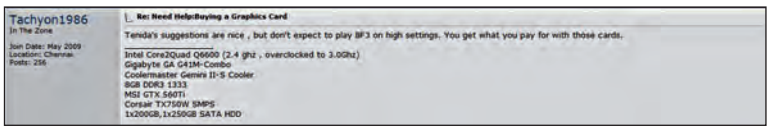


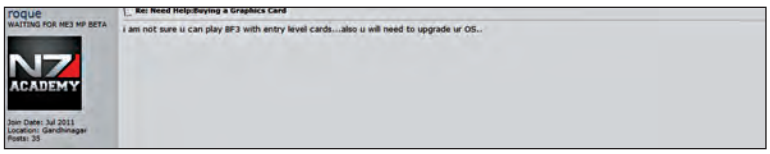
Head over to www.thinkdigit.com/forum for some of the best discussions, buying advice and user reviews. Of course, you'll meet like-minded (and not-so-like-minded) geeks, leading to some of the most constructive arguments you'll ever have.

Check out the thread below where some of our active members are in deep discussion over the purchase of a graphics card. Ico who is a moderator on our forums has something interesting to share in the end. For full story follow this link **bit.ly/uPvGa6**













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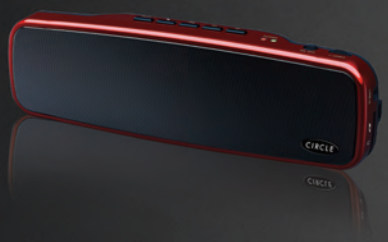
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The essential 101 glossary

There are a few terms that we come across in our daily lives but might not know what they actually stand for or mean. Here are a few commonly used terms and their explanations

KDE: Set up on the free open source software ideology, it's a set of applications that run on various platforms. KDE is best known for its Plasma desktop environment. A number of Linux distributions such as openSUSE and Kubuntu have this desktop environment as their default. The term KDE is sort of a scrambled version of a common desktop environment that was available for UNIX systems. Much like KDE is GNOME

PING: You might have used the term "ping" while sending a message to somebody, however, traditionally ping is a utility which is used to test the host's reachability on an IP (internet protocol). Ping is used to measure the round trip time for messages which are sent from the host to the destination computer. This works by sending a packet to a specified address and waiting for a reply.

Cloud computing: This has been quite the buzzword in the industry for some time now, and everyone seems to be yapping about the strength and potential of it. Companies use cloud computing to provide data computation, access and storage services. The idea of everything's on the cloud and accessible everywhere has manifested in today's world. Cloud computing is more of a service than a product where shared resources and information is given to computers



3G: Despite all the hoopla around the 3G services thanks to mobile operators' advertising, you still might not understand what the 3G mania is all about. The third generation of mobile telecommunications is a standard set by IMT (International Mobile Telecommunications). The service provided under the 3G umbrella includes voice telephone, mobile internet, video calls and mobile TV. Minimum data rate which needs to maintained is 2 Mbit/s.



Bandwidth: Expressed in bits/ second, this is a measure of consumed or available data communication resources. It's essentially the



difference between two frequencies and the amount of information that can flow through a channel. There can be data, network or digital bandwidth. Textual information states bandwidth as an analog signal bandwidth measured in hertz.

Virtualisation: A method of dividing the resources of a computer so that it can be used in various execution environments. Virtualisation is divided into hardware, software, partial or complete machine simulation.



It's a common practise in enterprise IT where the computer processing power is perceived as a utility for which clients can pay for as and when it's needed.

Middleware: Can be understood as a set of software services which allows the interaction of multiple processes on different machines to come together. In other words, middleware sits in between different application software that may be working on various operating systems.



Hot Spot: The next time you head out to a coffee shop which has a hot spot don't be alarmed, for it simply provides an internet access over wireless LAN through a router connected to an internet service provider. You can use a hot spot using your Wi-Fi enabled laptop or phone. Hot spots can be both, free or commercially available.



Router: Responsible for forwarding data packets between computer networks. A router joins two networks like LAN or an ISP network and directs traffic functions on the internet. Routers simply pass data between the computer and the modem or internet cable.

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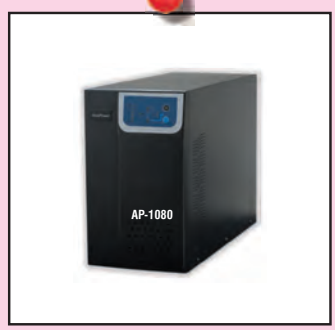
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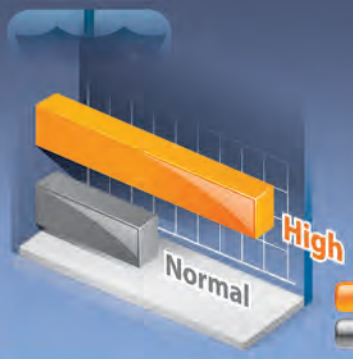
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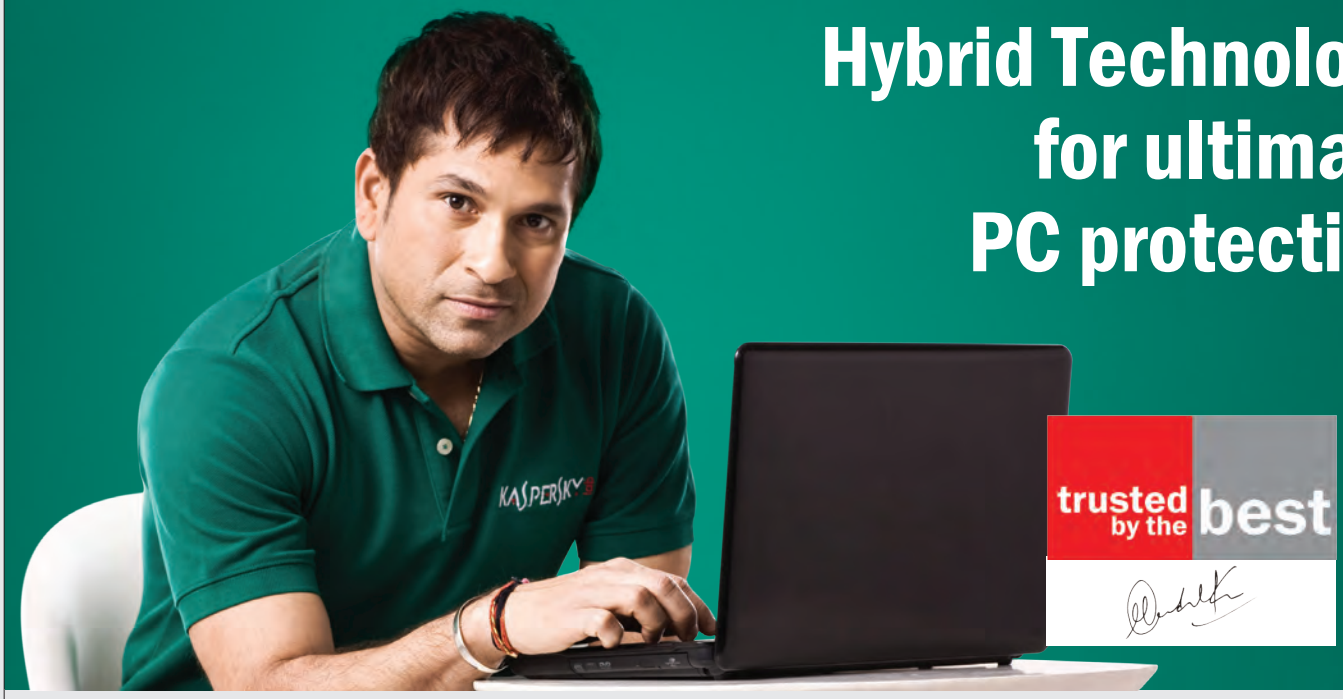
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