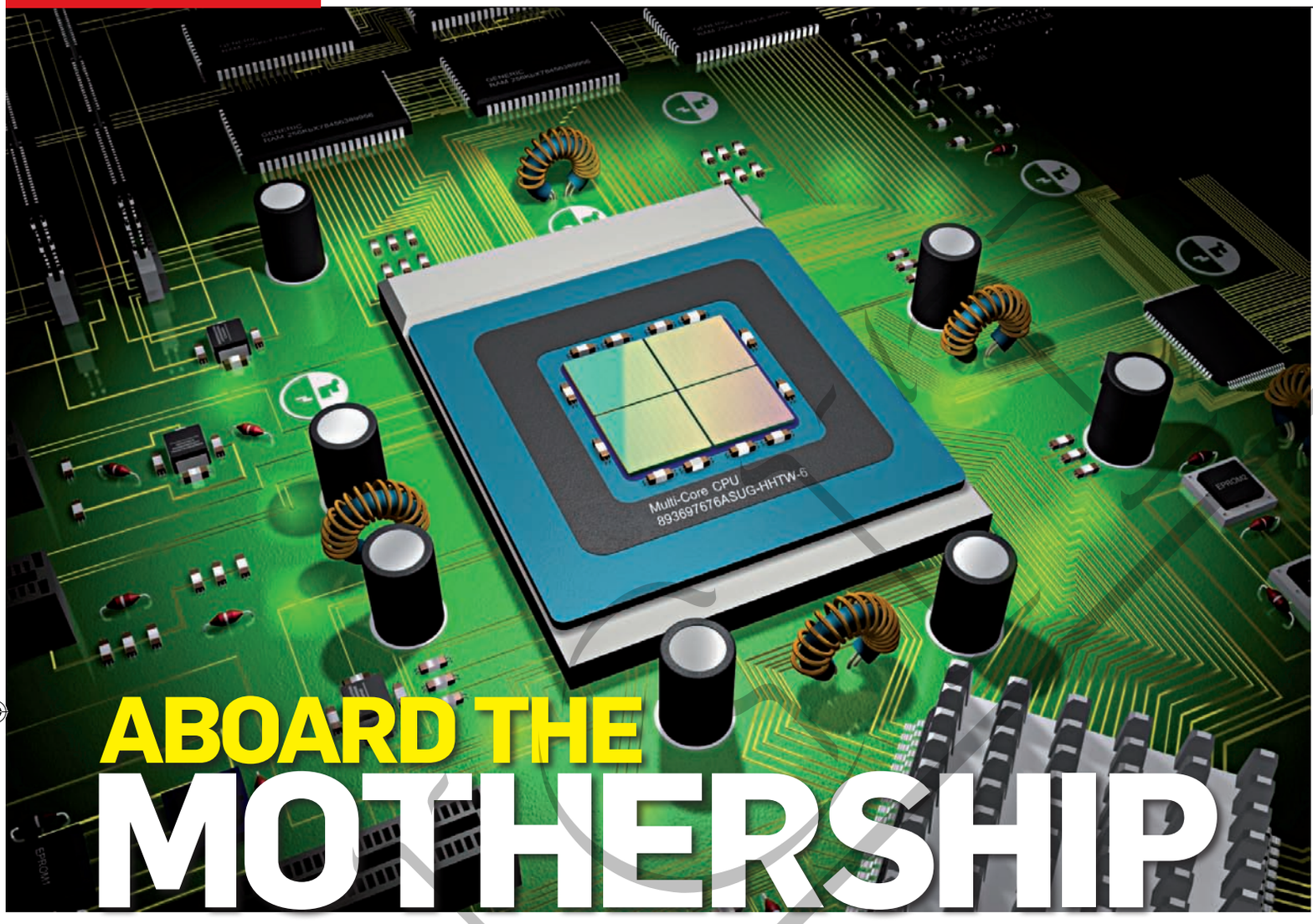
97 **HD Media Players**
A massive round up of nearly all the HD Media Players available in the market

102 **Gaming Stuff**
Find out which keyboard and mouse will work the best for you



ABOARD THE MOTHERSHIP

Source: photos.com

Choosing the right motherboard for your system is an arduous task, specially with so many brands and chipsets to contend with. We make that task easier for you by testing over 30 boards (both Z68 and A75 chipset based)

Nimish Sawant
nimish.sawant@thinkdigit.com

"What motherboard should I buy?" is one of the most common questions our readers ask us. Within motherboards, there are so many levels to consider that without proper guidance it's very difficult to pin down a specific board.

This year saw the entry of Intel's Sandy Bridge motherboards with the P67 and H67 chipsets, which Digit compared back in January. The Z68 chipset was launched in May and more recently, the A75 chipset was introduced by AMD. We decided to do a shootout of boards based on these two chipsets. You can expect a similar shootout of higher end chipsets, namely AMDs 990FX (already in the market) and Intel's X79 (to be launched later this year) sometime next year.

Needless to say, the Z68 and A75 are two completely different chipsets and boards housing these chipsets are not comparable. For this precise reason, even though we've tested both these chipsets, they should be considered as two separate comparison tests.

Z68 Boards

₹20,000 and up

A category of boards that is overkill for most users, but there's a definite demand for such boards. It's all about overclocking and tweaking and of course the looks. We got three boards which were priced well over ₹20,000 namely, the Gigabyte Z68X-UD7-B3, ASUS Maximus IV Extreme Z and Gigabyte G1 Sniper 2.

G1 Sniper2 is the LGA1155 iteration of the original G1 Sniper which was available on the LGA1366 socket for the X58 chipset. The packaging of the board and the board itself command attention. A metallic bullet magazine acts as the heatsink for the southbridge and has a cheeky warning, "Not a weapon, cannot be assembled as a firearm." The heatsink in the centre has five LEDs that glow green when the board is powered on.

The G1 Sniper 2 has features such as an on-board BigFoot Killer E2100 NIC and Creative

HOW WE TESTED

We believe that a motherboard's performance is completely a function of its components. The higher specced the components, the better the performance that you'll get. For the same chipset, the variation in performance is not very evident from our scores. The difference is within the margin of error. This can be easily understood by the fact that benchmark scores from a ₹8,000 board are quite similar to the benchmark scores from a ₹30,000 motherboard, give or take five percent.

So it ultimately boils down to the feature set you're getting with the motherboard, the build quality, ease of overclocking and other factors. Keeping this in mind, we decided to not give any weightage to the performance scores. We have run the benchmarks, and the scores are shared in the tables on the following pages. In our final evaluation though, we've not considered these scores as they don't give you an estimation of the motherboard's value.

Our Test Rig comprised of the following components:

For Intel Z68 boards
Processor: Intel Core i7-2600K
HDD: WD Velociraptor 600 GB
RAM: 2x2GB Kingston HyperX RAM
Graphics Card: ZOTAC GTX 560
Power Supply: Cooler Master GX 650W
OS: Windows 7 Ultimate x64

For AMD Boards
Processor: AMD A8-3850
HDD: WD Velociraptor 600 GB
RAM: 2x2GB Kingston HyperX RAM
Graphics Card: Integrated GPU AMD HD6550D
Power Supply: Cooler Master GX 650W
OS: Windows 7 Ultimate x64

The layout of the board was scored, we checked if there was enough spacing around the CPU region to comfortably attach the CPU cooler and which direction the SATA ports were pointing (those pointing up got a lesser score). Spacing between the RAM slots and the graphics card was checked. We also noted the spacing between PCIe and PCI slots. If a dual-slot card blocked the next PCIe slot, marks were deducted.

For build quality we noted the sturdiness of the heat sinks around the VRM (Voltage Regulator Module) regions and the southbridge. Motherboards lacking a heatsink around the VRM region got a lesser score. Boards with all solid state capacitors got a higher score. Back panel I/O ports were noted and also the option to expand USB ports. Fan connectors and SATA connections were noted.

Overclocking features such as utilities and on-board chip additions were taken into consideration. Boards having more options to overclock and tweak got a higher score. Also, the BIOS user experience was noted. Boards which didn't have a UEFI BIOS got a lower score since that's the future.

We did a thorough checking and testing (wherever applicable) of the feature set offered by a motherboard and based on the price, have decided on the winners.

digital audio processor. It also houses on-board amplifiers to drive audio. On-board implementation of a good sound processor is impressive for most users, but hardcore audiophiles will be disappointed and will invest in a dedicated sound card anyway. There's a dedicated overclock button on the back I/O panel to overclock the processor on the fly without having to reboot the system. Display ports are naturally absent. And needless to say, it's high time Gigabyte revamped the BIOS, Touch BIOS is a gimmick and is nothing like the experience on a UEFI BIOS.

The ASUS Maximus IV Extreme Z belongs to the Republic of Gamers (RoG) series. Build Quality is top-notch with attractive crimson-black heat sinks with multiple fins around the CPU. The RoG logo glows red when the system is powered on. Eight fan-connectors on-board will ensure sufficient cooling for your system.

The Maximus IV Extreme houses an Nvidia NF200 chip which controls second and fourth PCIe16x slot, while the processor's integrated controller controls the first and third. What this means is that you can run two cards in SLI at x16/x16 speed (slot 2 and 4), but there isn't much of a difference between the two configurations as latency from the NF200 chip has to be taken into account. So, this shouldn't be one of the reasons for you to consider this board. For those planning on a three-way SLI setup, NF200 does help.

Gigabyte Z68XP-UD3-iSSD

Nokia & NFC
Nokia launches NFC Hub to help in business development growth. **http://bit.ly/oQ0lkx**

ASUS Zenbook UX21 Teardown
Asus' latest ultra-slim laptop, the 11-inch Zenbook was taken apart to pieces. **http://bit.ly/ob2c68**

BEST BUY digit NOVEMBER 2011

Z68 Motherboards	Under ₹10,000				₹10,000 to ₹14,000				
Brand	**Biostar**	**ASRock**	**Gigabyte**	**ASUS**	**Intel**	**ZOTAC**	**ASUS**	**ASUS**	**ASUS**
Model No.	**TZ68K+**	**Z68 Extreme3 Gen3**	**Z68AP-D3**	**P8Z68 MPro**	**DZ68D8**	**Z68 ITX A-E**	**P8Z68-V LE**	**P8Z68-V**	**Maximus IV GENE Z**
Price (in ₹)	**7,990**	**8,800**	**9,880**	**9,901**	**10,000**	**10,600**	**10,994**	**13,041**	**13,110**
Features and Specs (Out of 70)	**24.57**	**33.32**	**18.62**	**25.62**	**16.87**	**18.48**	**26.04**	**30.24**	**34.16**
Board Layout (Out of 10)	**6.5**	**7.4**	**7.3**	**6.6**	**6**	**6**	**6.6**	**7.6**	**7.3**
Build Quality (Out of 15)	**11.1**	**12.825**	**10.95**	**10.95**	**5.25**	**9.9**	**11.25**	**12.825**	**13.65**
Package Bundle (Out of 5)	**1.2**	**1**	**1.2**	**1.2**	**0.6**	**1.2**	**1.2**	**1.6**	**1.3**
Overall (Out of 100)	**43.37**	**54.545**	**38.07**	**44.37**	**28.72**	**35.58**	**45.09**	**52.265**	**56.41**
Specifications									
Max. Memory Supported (GB) / No of DIMMs	4 / 32	4 / 32	4 / 32	4 / 32	4 / 32	2 / 16	4 / 32	4 / 32	4 / 32
No. of SATA 2 / SATA 3 / eSATA Ports	4/2/0	4/2/0	4/2/0	4/2/1	2/2/1	2/2/0	4/2/0	4/2/0	4/2/0
No. of PCI Express x16 Graphics Slots	2	2	1	1	1	1	2	3	2
Multi GPU (SLI/CrossFire) Support	Y/Y	Y/Y	N/Y	Y/Y	N/N	N/N	Y/Y	Y/Y	Y/Y
Optical S/PDIF Port / LAN Port	N/1	Y/1	N/1	Y/1	N/1	Y/2	Y/1	Y/1	Y/1
Integrated Wi-Fi (Y/N)	N	N	N	N	N	Y	N	N	N
No. of Ports: USB 2.0/USB 3.0	2/2	4/2	4/2	4/2	6/2	4/2	4/2	6/2	8/2
No. of Ports: FireWire / eSATA	0/0	0/1	0/0	0/1	1/1	0/0	0/0	0/1	0/2
Display Ports DVI / VGA / HDMI / Display Port	Y/Y/Y/N	Y/Y/Y/N	N/N/Y/N	Y/Y/Y/Y	Y/N/Y/Y	N/N/Y/N	Y/Y/Y/N	Y/Y/Y/N	N/N/Y/N
Power and Reset Buttons (Y/N)	Y	Y	N	N	N	Y	N	Y	Y
UEFI BIOS / Lucid Virtu (Y/N)	Y/Y	Y/Y	N/Y	Y/Y	N/Y	N/N	Y/Y	Y/Y	Y/Y
Headers: USB 2.0 / USB 3.0	3/0	4/0	3/0	5/0	4/0	2/1	4/1	3/1	2/1
POST debug LED / Button for overclocking	N/N	Y/N	N/N	N/N	N/N	Y/N	N/N	N/N	Y/Y
Total Fan Connectors	3	6	4	3	3	2	4	6	5
Form Factor	ATX	ATX	ATX	MicroATX	ATX	Mini ITX	ATX	ATX	MicroATX
Board Layout (So 10)									
Region around CPU / SATA Port Location	6.5/5	7/7	6.5/7	7/5	6.5/5	6/5	7/5	7/7.5	6.5/7
Placement of Memory Modules	8	8	8	8	6	7	8	8	8
Graphics Card Slot and PCI Slots	8	8	8	8	7	7	8	8	8
Build Quality									
All Solid State Caps (Y/N)	Y	Y	Y	Y	N	Y	Y	Y	Y
Button Build / Feedback	4/8	7/8	NA	NA	NA	4/6	NA	7/8	8/8
VRM/Southbridge Heatsink Quality	4/5	7/7	5.5/6	5.5/6	0/5	5.5/5	5.5/7	7/7	8.5/8
Package Bundle									
No of SATA Cables	4	2	4	4	2	4	4	4	3
USB 3 Bracket	0	0	0	0	0	1	0	0	N
CrossFire / SLI Bridge	0	1	0	0	0	0	0	1	1
Performance (Only for reference)									
Cinebench R11.5 (OpenGL /CPU (all cores))	51.74/6.66	51.85/6.68	52.42/6.79	51.19/6.83	55.91/6.98	49.75/6.5	51.42/6.87	51.67/6.76	52.04/6.83
3D Mark Overall	4150	4109	4154	4174	4178	4146	4182	4180	4179
WinRAR 4.0 (Multi-threaded)	3503	3509	3505	3516	3687	3491	3529	3535	3515
100 MB file Video Encoding (VOB-DivX 7) (sec)	20.28	19.35	20.79	19.42	19.39	20.52	19.52	19.6	19.51
File Transfer (Sequential /Assorted) (MB/s)	45.7/48.5	41.2/47.2	47.5/48.5	41.2/41.2	46.8/47.5	44.8/49.1	46.2/46.2	46.38/47.1	47.3/49.2
USB 3.0 Sequential Write/Read (MB/s)	66.1/84.8	64.8/88.1	66.7/88.3	65.6/86.5	65.6/83.5	66.5/85.4	65.4/86.6	67.1/85.5	65.1/85.5
USB 3.0 Assorted Write/Read (MB/s)	44.7/70.2	44.8/73.7	47.4/71.4	44.4/72.2	44.6/67.5	46.9/72.7	44.4/77.7	44.8/71.8	47.6/71.6
Game									
Resident Evil 5 (1680x1050, med)	178.2	176.2	180.2	180.2	190.8	175.4	181.2	181.9	180.2
STALKER: COP (1680x1050, med)	164.7	164.9	165.6	163.1	164.2	163.2	163.7	164.8	165

On-board RoG features are also quite exhaustive and give you many ways to overclock or tweak your way through. RoG Connect allows you to connect your motherboard to a notebook and tune it on the fly. With iDirect, you can do the tweaking using an iPad or even an iPhone, a decent feature to show off to your pals. A BIOS switch allows you to maintain a copy of your stable BIOS while you tinker with the other BIOS.

The Z68X-UD7-B3 is Gigabyte's flagship Z68 board and comes with the traditional bells and whistles of all UD7 boards. A black-coloured PCB densely packed with ICs provides a perfect background to the grey/golden heatsinks. All the heatsinks are connected via a heat pipe which assists in heat dissipation. Compared to G1 Sniper2, this board has a good assortment of back I/O panel ports. A dedicated Start button and POST

Steve Jobs was opposed to apps

Excerpts from Jobs' authorized biography reveals the Apple visionary was initially opposed to all things apps.

Five pros of Google+

Google+ has had its detractors but they're wrong. Google+ is awesome. **http://gizmo.do/mQ5M6j**

	₹14,000 to ₹20,000							₹20,000 and up		
	MSI	ASUS	ZOTAC	MSI	Gigabyte	ASUS	MSI	ASRock	Gigabyte	ASUS	Gigabyte
	Z68MA-ED55	P8Z68-V Pro	Z68 ITX B-E	Z68A-GD65 B3	Z68XP-UD3-iSSD	P8Z68 Deluxe	Z68A-GD80	Z68 Extreme7 Gen 3	Z68X UD7 B3	Maximus IV Extreme Z	G1 Sniper 2
	13,500	14,248	14,400	14,980	16,250	17,997	18,900	18,999	23,920	26,220	34,500
	28.42	30.38	16.45	29.33	25.13	32.69	31.43	37.8	26.11	37.03	22.61
	6.8	7.2	6	7.15	7.3	7.5	6.9	7.2	7.35	7.6	7.5
	12.75	12.825	9.975	11.55	11.7	12.825	13.05	13.425	13.2	13.65	12.6
	0.6	1.6	1.2	1.6	1.6	1.6	1.6	1.75	2	2.4	1.6
	48.57	52.005	33.625	49.63	45.73	54.615	52.98	60.175	48.66	60.68	44.31
	4 / 32	4 / 32	2 / 16	4 / 32	4 / 32	4 / 32	4 / 32	4 / 32	4 / 32	4 / 32	4 / 32
	4/2/0	4/2/2	2/2/0	4/4/0	4/2/0	4/2/2	4/3/0	4/6/0	4/2/2	4/2/2	2/2/2
	2	3	0	2	2	3	3	5	4	4	2
	N/Y	Y/Y	N/N	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y	Y/Y
	Y/1	Y/1	Y/1	Y/1	Y/1	Y/2	Y/2	Y/2	Y/2	Y/2	Y/1
	N	N	Y	N	N	N	N	N	N	N	N
	4/2	6/2	2/2	4/2	8/2	8/2	4/2	2/4	2/6	1/8	7/2
	1/0	0/1	0/1	0/0	1/0	1/2	1/1	1/1	2/2	0/2	0/1
	Y/Y/Y/N	Y/Y/Y/N	Y/N/Y/Y	Y/Y/Y/N	N/N/Y/N	N/N/N/N	Y/N/Y/N	Y/Y/Y/Y	N/N/N/N	N/N/N/N	N/N/Y/N
	Y	Y	N	N	N	Y	Y	Y	Y	Y	N
	Y/Y	Y/Y	N/Y	Y/Y	N/Y	Y/Y	Y/Y	Y/Y	N/N	Y/Y	N/Y
	4/0	3/1	1/1	3/1	3/1	2/1	3/1	4/1	2/2	4/1	3/1
	N/Y	N/N	N/N	N/Y	N/N	Y/N	N/Y	Y/N	Y/N	Y/Y	N/Y
	4	6	2	5	4	5	5	6	6	8	5
	MicroATX	ATX	Mini ITX	ATX	ATX	ATX	ATX	ATX	ATX	eATX	ATX
	6.5/7	6/7	6/5	6.5/7	6.5/7	6.5/7.5	6.5/6	6.5/7.5	7.5/7	8/7	7.5/7
	6	8	7	8	8	8	8	8	8	8	8
	7	8	7	7.5	8	8	8	7	7.5	8	8
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	8/8	7/8	5/6	NA	NA	7/8	8/8	7/8	8/8	8/8	NA
	6.5/7	7/7	5.5/5	6.5/7	6.5/7.5	7/7	7.5/7	8.5/7.5	8/7	8.5/8	9/8
	2	4	4	4	4	4	4	6	4	4	4
	0	1	1	1	N	1	1	1	1	0	1
	0	1	0	1	1	1	1	1	2	3	1
	50.45/6.61	52.68/6.86	25.1/6.65	51.21/6.62	55.47/6.86	53.23/6.86	51.29/6.64	51.1/6.68	50.78/6.59	52.68/6.88	51.49/6.62
	4174	4102	1141	4159	4134	4177	4145	4144	4134	4185	4145
	3503	3370	3314	3505	3535	3529	3493	3491	3490	3544	3484
	20.42	20.23	20.76	20.42	19.97	19.34	20.34	20.41	20.51	20.07	20.86
	46.9/48.7	46.1/46.4	45.1/43.5	46.7/45.4	46.7/46.5	47.2/46.3	47.5/44.4	48.54/44.3	47.2/45.3	45.8/46.2	44.8/45.2
	68.5/84.5	67.1/86.3	61.1/81.5	67.7/85.2	63.1/82.1	65.4/86.3	68.6/83.4	67.5/82.2	66.0/80.1	65.8/86.1	67.0/81.1
	44.7/72.3	44.3/71.9	25.8/68.4	45.6/71.3	44.3/67.4	44.4/72.7	44.5/72.2	41.4/70.2	45.2/72.16	45.1/73.1	45.2/68.7
	178.4	178.2	70.7	175.8	182.4	181.1	176.5	178.4	174.4	179.1	177.9
	164.2	163.4	44.8	162.5	163.2	165.2	163.3	164.2	163.3	165.2	164.1

debug LED are helpful additions and so is the Gigabyte DualBIOS, which lets you keep a backup of the stable BIOS in one chip. Three-way SLI at x16/x8/x8 is possible due to the NF200 chip.

Another interesting feature is that you can use the USB 3.0 ports as charging points for USB peripheral devices even when your system is off or in standby.

The BIOS is the only sore point about this board specially when compared with the beautiful BIOS on the ASUS board. Absence of Lucid Virtu support on the board means that you won't be able to use integrated graphics for tasks such as transcoding, but then we doubt anyone would be using integrated graphics in the first place assuming you house graphics on this board.

In terms of future-proofing, all the boards have BIOSes to make them compatible with the

Superheated TVs

Sony to recall 1.6 million bravia TV`s due to mellting components
http://engt.co/oxz1KN

Purple Roku LT

Arriving this month at a price of ₹2,500, the Roku LT is a lite version lacking bluetooth and a card reader

A75 Motherboards

Brand	ASUS	Gigabyte	Gigabyte	Biostar	ZOTAC	ECS	ASUS	ASUS
Model No.	**F1A75-V PRO**	**A75M-D2H**	**A75M-UD2H**	**TA75A+**	**A75ITX A-E**	**A75F-M**	**F1A75M**	**F1A75M Pro**
Price (in ₹)	8,648	6,370	6,591	6,800	7,990	5,000	6,704	7,100
Specifications (Out of 70)	**33.6**	**27.23**	**30.17**	**31.22**	**27.79**	**29.33**	**29.82**	**31.15**
Board Layout (Out of 10)	**7.3**	**6.3**	**6.3**	**7.8**	**6.05**	**6.95**	**7.6**	**7.6**
Build Quality (Out of 20)	**11.2**	**7.9**	**11.5**	**12.5**	**10**	**3**	**7.6**	**11.8**
Grand Total (Out of 100)	**52.1**	**41.43**	**47.97**	**51.52**	**43.84**	**39.28**	**45.02**	**50.55**
Specifications								
Max. Memory Supported (GB) / No of DIMMs	64 / 4	32 / 2	64 / 4	64 / 4	32 / 2	64 / 4	64 / 4	64 / 4
No. of SATA 3 ports	6	6	5	6	4	6	6	6
No. of PCI Express x16 graphics slots	2	2	2	2	1	1	2	2
Optical SPDIF Port / LAN Port	Y / 1	Y / 1	Y / 1	N / 1	Y / 2	Y / 1	Y / 1	Y / 1
Integrated Wi-Fi (Y/N)	N	N	N	N	Y	N	N	N
No. of ports: USB 2.0/USB 3.0/FireWire/eSATA	2/4/0/1	4/2/0/1	4/2/1/1	4/2/0/0	0/6/0/0	4/2/0/0	4/2/0/0	2/4/0/0
Display Ports DVI / VGA / HDMI / Display Port	Y/Y/Y/N	Y/Y/Y/N	Y/Y/Y/ N	Y/Y/Y/N	Y/N/Y/N	Y/Y/Y/N	Y/Y/Y/N	Y/Y/Y/N
Power and Reset Buttons (Y/N)	N	N	N	Y	N	N	N	N
Headers: USB 3.0 / USB 2.0	1 / 4	1 / 1	1 / 2	1 / 3	1 / 2	1 / 3	1 / 3	1 / 4
Debug LED (Y/N)	N	N	N	Y	N	N	N	N
Fan Connectors	4	2	2	3	1	2	3	4
Board Form factor	ATX	MicroATX	Micro ATX	ATX	Mini ITX	Micro ATX	MicroATX	Micro ATX
Board Layout (So 10)								
Region around the CPU	7	7	7	7	6.5	6.5	6	6
Location of SATA Ports	7	5	5	8	5	6.5	8	8
Placement of Memory modules	8	8	8	8	7	8	8	8
Graphics card slot and PCI slots	8	8	8	8	8	8	8	8
Build Quality								
All Solid State Caps (Y/N)	Y	Y	Y	Y	Y	N	Y	Y
Button build	0	0	0	4	0	0	0	0
Button Feedback	0	0	0	7	0	0	0	0
VRM Heatsink Quality	6	0	6	5.5	5	0	0	7
Southbridge Heatsink Quality	6	6.5	6.5	5	5	5	6	6
Performance								
Cinebench R11.5								
OpenGL	26.01	26.45	26.34	26.25	26.56	26.46	26.14	26.19
CPU (All cores)	3.45	3.48	3.39	3.47	3.32	3.4	3.41	3.42
3D Mark 11 Overall	1035	1029	1031	1017	1033	1023	1029	1024
WinRAR 4.0 (Multi threaded)	1828	1841	1841	1828	1775	1777	1821	1764
100 MB file Video Encoding (VOB-DivX 7) (sec)	40.07	39.04	39.43	40.22	40.53	40.59	40.28	40.08
File Transfer Sequential / Assorted (MB/s)	43.72/41.88	44.04/42.22	45.79/43.04	46.02/44.57	46.11/41.02	44.4/43.43	45.2/45.2	41.0/41.5
USB 3.0 Sequential Write / Read (MB/s)	62.06/77.22	62.64/77.6	63.01/77.5	63.01/76.5	64.72/77.67	62.95/79.28	66.6/78.2	65.4/77.2
USB 3.0 Assorted Write / Read (MB/s)	25.92/62.5	23.4/62.51	26.59/59.76	24.23/57.54	40.89/61.16	40.93/62.84	41.5/62.8	40.5/61.7
Game								
Resident Evil 5 (1680x1050, med)	43.2	42.9	42.9	42.8	41.4	42.8	42.7	42.4
STALKER: COP (1680x1050, med)	26.6	26.4	26.4	26.2	25.6	26.1	26.1	26.2

Ivy Bridge family of processors. But we doubt anyone would want to move from Sandy Bridge so soon. Only the G1 Sniper 2 offers PCIe 3.0 support (which has almost double the bandwidth that is offered by PCIe 2.0) thanks to the Pericom PI3PCIE switches. PCIe 3.0 standard will be supported by future graphics cards running alongside the Ivy Bridge CPUs.

Winners: ASUS Maximus IV Extreme Z won the Best Buy thanks to its overall highest score. Its feature set and overclocking options give it an edge over the competing boards.

₹14,000 to ₹20,000

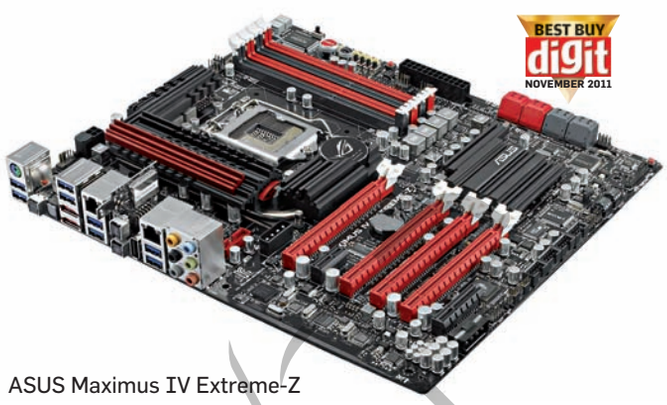
Enthusiasts who don't want the bells and whistles of the RoG series or the G1 killer, will look for boards in this price bracket. We look for boards that offer a great build and important feature set, and good overclocking options.

One board that seems out of place here is the ZOTAC Z68ITX B-E. This board has an onboard NVIDIA GT 430 graphics module. Needless to say, this isn't an enthusiast board and is an ideal candidate for an HTPC setup thanks to the variety of display ports, an onboard

	ASUS	MSI	Gigabyte	ASRock	ASRock
	F1A75-M LE	A75MA-G55	A75-D3H	A75 Extreme6	A75 Pro4-M
	6,158	6,865	7,020	7,500	5,950
	25.13	**25.62**	**32.2**	**40.04**	**28**
	5.9	**6.45**	**6.9**	**7.6**	**6.05**
	7.6	**12.4**	**7.9**	**15.1**	**11.2**
	38.63	**44.47**	**47**	**62.74**	**45.25**
	32 / 2	64 / 4	64 / 4	64 / 4	64 / 4
	6	6	5	8	5
	2	2	2	3	2
	N / 1	N / 1	Y / 1	Y / 1	Y / 1
	N	N	N	N	N
	4/2/0/0	4/2/0/0	2/4/0/1	2/4/1/1	2/4/0/1
	Y/Y/N/N	Y/Y/Y/N	Y/Y/Y/N	Y/Y/Y/N	Y/Y/Y/N
	N	N	N	Y	N
	1 / 3	1 / 2	1 / 4	1 / 3	0 / 2
	N	N	N	Y	N
	2	3	3	6	4
	Micro ATX	Micro ATX	ATX	ATX	Micro ATX
	5	6	5	6	6.5
	5	6	7	8	5
	8	7	8	8	7
	8	8	8	8	8
	Y	Y	Y	Y	Y
	0	0	0	7	0
	0	0	0	8	0
	0	7.5	0	7	5.5
	6	6.5	6.5	6.5	6.5
	26.14	26.44	26.72	26.56	25.97
	3.45	3.45	3.43	3.45	3.45
	1026	1033	1033	1007	1008
	1771	1834	1790	1834	1834
	41.03	40.23	39.64	39.58	40.12
	45.16/44.4	46.13/44.19	47.04/46.4	45.33/45.2	45.1/45.0
	65.04/77.2	65.37/77.8	65.24/78.7	64.4/83.3	46.3/65.2
	41.45/62.1	43.68/63.43	44.1/63.44	47.53/65.4	46.3/65.2
	43.1	43.5	44.5	42.8	42.6
	26.2	26.4	26.5	25.9	25.8

Wi-Fi adapter and an onboard graphics card. Its priced higher considering it houses SO DIMM slots, which has costlier laptop RAM modules.

Gigabyte Z68XP-UD3-iSSD, is the only motherboard with an on-board SLC SSD drive connected to an mSATA port just below the CPU socket. The Intel 20 GB SSD is ideal for users who'll be using the Intel Rapid Storage Technology. You can use it in the Enhanced Mode which writes data to both SSD and HDD ie. mirroring and the maximised mode, which only writes to the cache memory (SSD).



ASUS Maximus IV Extreme-Z

Apart from the SSD, the board is quite similar to the Z68AP-D3. The build quality of the board is quite good with sturdy heatsinks. The PCIe slots can be used for SLI as well as CrossFire, but one of them runs at x8 speed.

ASUS has the higher-end P8Z68-V Pro and P8Z68 Deluxe (the highest-end board outside the RoG series of boards) in this segment. A major difference between the two is the absence of display ports and presence of an extra LAN port, an extra eSATA port, a FireWire port and a coaxial S/PDIF port on the Deluxe. Both the boards support dual intelligent processors such as EPU (Energy processing Unit) and TPU (Turbo V Processing Unit). There are dedicated switches to activate the EPU and TPU processors. While the EPU is meant for power saving functions, we're more interested in the TPU, as that allows you to automatically overclock your system by hitting Start on the Auto-Tune function of the Turbo V EVO utility. It's a boon to amateur overclockers and a pleasure to watch the systematic auto-tuning. But we wonder if it interests hardcore overclockers?

Finally, coming to the MSI boards, we have the Z68A-GD80 (B3) and Z68A-GD65 (B3). The GD80 is the higher end board of the two, sporting dual LAN ports, three PCIe x16 slots, an eSATA port on the back IO panel, better quality heat sinks and an extra SATA 6 Gbps port. Build quality of both the boards is superb with military class components. The standard MSI components such as Super Ferrite Chokes (SFC), DrMOS (Driver MOSFETs) and solid state caps are all present.

Both boards support SLI and CrossFireX. The OC Genie button for overclocking-on-the-fly and the voltage probe points are interesting additions for enthusiasts. MSI also has the UEFI BIOS which will take some time getting used to if you're new to such kind of BIOSes. MSI Control centre is the utility that allows you to overclock your system, run it at lower power settings with the Green Power tab and monitor CPU

ASRock Z68-Extreme7-Gen3

Cabs of the future
James Brighton drove the World's first RC cabs, a classic old English Taxi

Down with the 3DS
Nintendo dropped the price of the 3DS from ₹12,400 to ₹8,436

ASUS P8Z68-V Pro

operation, temperatures and voltages among other things.

ASRock Z68 Extreme7 Gen3 is the only Gen3 board we received which indicates support for future Ivy Bridge processors, although you can get a present generation board to support Ivy Bridge with a BIOS update. What you won't get however, is PCIe 3.0 chips, which will be the standard for future graphics cards. Gigabyte G1 Sniper2 is the only other board having PCIe 3.0 support. As of now you don't have any card which can exploit PCIe 3.0 speeds, but makes sense if you want to future-proof your system.

It's packed to the gills with features. The 10 SATA ports on the board will ensure you never run out of space to add more drives to your rig. There are also enough PCIe slots and an NVIDIA NF200 chip for you to run a three-way SLI setup. If you're using a single graphics card, you need to lodge it in the second PCIe slot from the CPU to get an x16 speed. Build quality is brilliant with sturdy heatsinks on the VRMs as well as the southbridge, it is one great looking board.

Winners: ASUS P8Z68-V Pro won the Best Buy as it offers most of the features, seen on the higher end P8Z68 Deluxe, at a very attractive price. ASRock Z68 Extreme7 Gen3 was awarded the Editor's Pick for its plethora of features (which are equivalent to the ₹20,000 and up category of boards) and connectivity options. Another board which we found interesting even though it's not a winner, is the Gigabyte Z68XP-UD3-iSSD, specially for those who want to exploit the Intel RST feature.

₹10,000 to ₹14,000

This category has an assortment of boards that are quite distinct from each other. You get three form factors here: ATX, Micro ATX and Mini ITX.

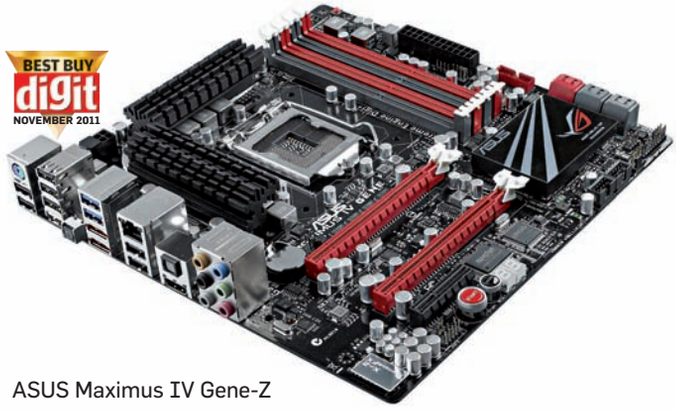
Let's start off with the least attractive of the boards, the Intel DZ68DB. We call it the least interesting because it can't hold a candle to the aesthetics, build quality and feature set of the competing boards. There's a lot of free PCB space on the lower side making us wonder if it really had to be an ATX form factor board. Plus, it has a mixture of electrolytic and solid state caps while its competitors feature all-solid state caps. Pricing for such a basic board being ₹10,000 just does not make any sense.

ZOTAC Z68ITX A-E is the only mini ITX board in this category and a very interesting one at that. Lodge a high-end CPU in it, and the board functions like any other board. It has a decent feature set such as an on-board Wi-Fi adapter, POST debug LED and a full PCIe x16 slot. The back panel IO is flush with connectivity options and makes for a perfect HTPC board. It has dual LAN port, dual HDMI ports and 8-channel audio out. The only unappealing part is the upward pointing SATA ports. With a heatsink and all other components, the board will be densely populated, in this case upward pointing SATA ports are just not ideal for efficient wire management. The ZOTAC bundles two Wi-Fi antennas, a USB 3.0 bracket, an 8-pin power connector to ease the connection to the on-board power connector and a mini DP-DP adapter. Don't expect much in terms of overclocking as there are limited options as compared to higher end boards. The Mini PCIe adapter can also function as an mSATA port in case you want to add an on-board SSD for RST in the future.

ASUS P8Z68-V and P8Z68-V LE belong to the same line of boards, but LE is a slightly stripped down version of the higher end V, which itself is slightly low on the specs when compared with V Pro and Deluxe. The P8Z68-V has an extra PCIe slot, much better heat-sinks over the VRMs, an extra PCI slot and an eSATA port over the P8Z68-V LE. The extra PCIe slot is ideal for gamers who want dual GPU gaming as it allows an x8/x8 configuration as opposed to x16/x4 on the P8Z68-V LE.

The other ASUS board in this segment is the RoG Maximus IV Gene Z. It comes in the micro ATX form factor and to have a RoG feature set in this form factor is quite impressive. It lacks features such as RoG iDirect, RC Bluetooth, PCIe switches and USB BIOS Flashback, but for the price point, it's packed with quite a lot of features such as RoG Connect, Probelt and SupremeFX X-Fi2 audio solution among others. There's a POST debug LED and an HDMI out. Build quality is similar to the higher end RoG board with sturdy heatsinks. Gamers can game with a single x16 or a dual x8/x8 configuration. We would have liked to see more USB 3.0 ports on the back panel though. Overclocking options are easily accessible thanks to the well designed ASUS UEFI BIOS. So in a way, those who can't afford the higher end Extreme Z (which is overkill for most regular users) but still want the RoG feature set and dual GPU gaming, the Gene Z makes for a great choice.

Coming to the MSI Z68MA-ED55 (B3) board, you get a well laid out board with the Military Class II branding on the sturdy heatsinks. Beside the OC Genie button you have a little buzzer speaker and probe points to check voltages manually using the con-



ASUS Maximus IV Gene-Z

Contact sheet				
Brand	**Company**	**Phone no**	**E-mail**	**Website**
AsRock	Jupiter International	+91-9830031901	info@asrock.com.tw	www.asrock.com
ASUS	ASUS Technology Pvt. Ltd.	18002090365	reachus@asus.com	www.asus.in
Biostar	Abacus Peripherals Pvt.Ltd.	1800 22 1988	enquiry@abacusperipherals.com	www.abacusperipherals.com
ECS	Rashi Peripherals Pvt Ltd	91 22 4047 0828	response@rptechindia.com	www.reptechindia.com
Gigabyte	GIGABYTE Technology India Pvt. Ltd.	91-22-40633218	anilkumarr@gigabyte.in	www.gigabyte.in
Intel	Intel	080-28542105	sasupport@mailbox.intel.com	www.intel.com
MSI	MSI India	1800 200000 4	marketingindia@msi.com	http://in.msi.com
Zotac	Neoteric Informatique Ltd.	+91-9891282522	tarun.kalra@neoteric.co.in	www.zotac.com

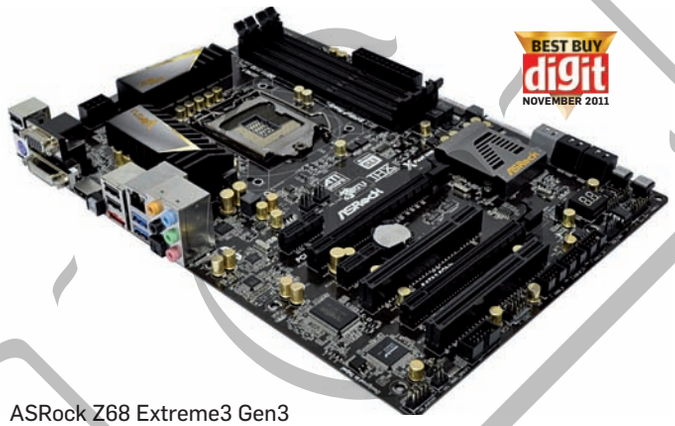
nectors bundled along with the board. It only supports CrossFire at x8/x8 configuration. The BIOS menu of the MSI board is quite attractive to look at. If you leave aside the proprietary RoG features, this board is comparable to the Maximus IV Gene Z. There are more display ports (DVI and VGA) on the MSI board. Pricing wise the ASUS board is ₹400 cheaper, so it's anyone's guess which is a better option.

If you plan to use graphics cards on all the slots then you'll lose access to USB headers and power/reset buttons in the MSI Z68MA ED55 board and in the ASUS P8Z68-V board as a dual slot card will cover these ports.

Winner: ASUS Maximus IV Gene Z was awarded the Best Buy for the simple reason that you're getting all the goodness of a high end gaming board in a micro ATX form factor. The pricing may seem high for a micro ATX board, but if you do plan to pursue gaming or overclocking, there is no better choice in this range. For normal users, the ASUS P8Z68V-LE makes sense.

Under ₹10,000

We got just four sub ₹10,000 boards here, including the Biostar TZ68K+, Gigabyte Z68AP D3, ASRock Z68 Extreme3 Gen3 and ASUS P8Z68-M Pro, which shows that Z68 boards aren't cheap.



ASRock Z68 Extreme3 Gen3

Biostar TZ68K+ makes for a good entry-level Z68 motherboard but the surprisingly limited connectivity options on the back panel I/O will leave many of you disappointed. There are only two USB ports on the back panel and the absence of a USB 3.0 header means that you can't add more USB 3.0 ports, which is just sad. The UEFI BIOS of Biostar board is quite easy to operate although it's not as good looking as the one found on ASUS or MSI boards. A very interesting addition to the Biostar board is the BIO-Remote 2, which is basically an Android and iPhone application that lets you control your PC with your cellphone. You can use your phone as a remote control, as a mouse, to overclock your system or update the BIOS of your system remotely. Quite impressive at sub-₹10,000.

ASUS P8Z68-M Pro is a compact board with as many as five USB 2.0 headers, five SATA ports and features such as iGPU Boost (which overclocks the integrated GPU with an on-board switch) and MemOK button. Although there are two PCIe x16 slots, only one of them is true x16 whereas the other is locked to run at x4. The heatsink quality is strictly OK as compared to ones seen on higher end boards, but it's much better than the Biostar one.

Gigabyte Z68APD3 includes a unique feature in the form of an mSATA connector on which you can lodge a solid state drive. Another aspect that stands out on this board is the presence of serial and parallel ports on the back panel IO. Now these ports are rarely used in a home environment, so it makes us wonder if Gigabyte is targeting this board at SOHO set-ups. But the presence of an HDMI port is reassuring. The mSATA connector allows you to populate the board with your choice of SSD. Setting up the Rapid Storage Transport technology using Gigabyte's EZ Smart Response utility is a breeze. Don't expect extreme levels of overclocking on this board though.

The build quality of the Gigabyte and ASUS boards is better than the Biostar boards.

ASRock Z68 Extreme3 Gen3 has good styling, which reminds you of its elder brother

End of Google Buzz
Google has announced the closure of Google Buzz to welcome Google+
http://bit.ly/qqofSx

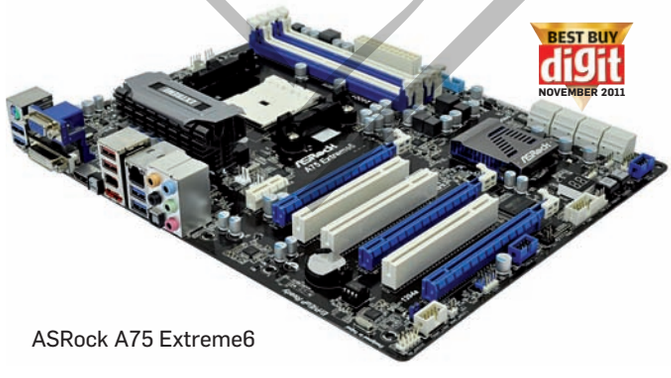
ASUS Swap
ASUS has started a "swap" service for its UAE customers where they can swap defective parts

- the Extreme7. The heatsinks are quite sturdy and it houses a POST debug LED as well as power/reset switches for overclockers. However, it has fewer SATA ports, USB 3.0 ports and one less LAN port as compared to the Extreme7. Still, for its pricing, the board is quite feature-rich. Build quality is great, it uses solid state caps and has a UEFI BIOS. It lacks a USB 3.0 header, but no other board in this category has it either. One interesting aspect is that it has a provision for coolers of both, the Socket LGA 1155 as well as the LGA 775, there's a very thin gap between them, be extra careful while installing a high-end cooler.

Winner: ASRock proved its mettle yet again, when it bagged the Best Buy award for ASRock Z68 Extreme3 Gen3.

A75 boards

AMD introduced its Fusion desktop APU in the form of Llano and along with it, the A75 chipset-based motherboards. The A75 chipset supports 10 USB 2.0 ports, 4 USB 3.0 ports, 2 USB 1.1 ports (we think it's a waste) and 4 PCIe Gen 2 slots among other things. The boards based on this chipset are priced economically as the APU that we used (A8-3850) is targetted at mainstream users. The quad core Llano APU houses the AMD HD 6550D GPU, which is based on the Redwood architecture and has 400 stream processing units.



ASRock A75 Extreme6

itive as far as the A75 boards is concerned, as performance is a function of the components being used. Culling the best motherboards for the price is quite a task

Let's start off with ASUS as it sent the maximum number of boards, namely: F1A75-M LE, F1A75M, F1 A75M Pro and F1A75 V Pro. As is obvious from the naming convention, the LE is a lower-end board, whereas the Pro boards are high-end. All the boards except the F1A75-V Pro have micro ATX form factor. Apart from that, the V Pro has an additional SATA 6 Gbps port, more PCI and PCIe x1 slots, an eSATA port and a DisplayPort on the back IO panel and a better heatsink with connecting heat-pipe. The F1A75 M LE and F1A75 M both have only two USB 3.0 ports. The LE board has only two DIMM RAM slots and lacks a HDMI port. Its SATA ports point upwards not sideways—a big turn off for wire management.

The F1A75-V Pro has better heatsinks than other ASUS boards; the F1A75M, F1A75M LE don't have heatsink over the VRMs.

Biostar TA75A+ is a feature-rich board but we would have liked to see some more USB 3.0 ports and a better heat-sink design for the south bridge. Looking at the layout, one gets the feel that this board could have been a micro ATX one as 2 PCI and 2 PCIe x1 slots seem a lot. The POST debug LED is a great addition and includes a dedicated section for overclocking, but is not as exhaustive or as good looking as the MSI or ASUS BIOS. The heatsink quality is quite bad. The BIO Remote is a nice feature to show off to your friends. It allows you to control your system, play back media files and even overclock over the air using the Bio remote app on your iPhone or Android device. Thankfully all the SATA ports point outwards.

The ECS A75F-M, is an interesting board especially considering its pricing. The board comes in the microATX form factor and has bare minimum features. Cost cutting on the board is evident - absence of a dedicated heat sink around the VRMs, use of electrolytic capacitors, upward facing SATA ports, and two USB 3.0 drives. It sports a UEFI BIOS with both the EZ and Advanced mode. The USB 3.0 charger helps in charging peripheral devices in as many as five states: working, standby, suspend to RAM, etc.

The MSI A75MA-G55, is an impressive board having a military class certification. So, expect rock-solid build quality on the board. You get the option to overclock the processor as well as the integrated graphics in an incremental manner. Of the six SATA ports on board, two of them point upward, which can be problematic if you want to install a graphics card in the second slot.

Gigabyte had three boards competing in this category: A75M-D2H, A75M-UD2H and A75-D3H. The A75M-D2H is an entry-level board with only two RAM slots and two USB 3.0 ports. The UD2H has four DIMM slots but a much more populated back IO panel, which includes an eSATA port as well as a FireWire port. All the display ports such as HDMI, DVI, VGA and DP are present on the UD2H. Both, the D2H and UD2H are micro ATX form factor boards. The A75-D3H is an ATX form factor board having all four USB 3.0 ports on the back IO panel and an option to add two more with the USB 3.0 header. Three PCI slots do seem like a lot and the second PCIe x16 slot runs at x4 speed. A heatsink around the VRM region is absent and there is one SATA port pointing upwards. All the Gigabyte boards feature the proprietary DualBIOS chips which allows you to maintain a backup of the last stable BIOS on one chip, while you tweak the active BIOS. Gigabyte BIOS is still the old generation one and it's a real pity to have such good boards anf not have them running the latest UEFI BIOS.

ASRock sent us two boards, the A75 Extreme 6 and A75 Pro4-M. The former is it's flagship A75 board and the latter is a mid-range board. The Extreme 6 comes with good features including eight SATA 3 ports, POST debug LED, start/reset buttons and three PCIe slots among other things. Build quality is very sturdy. The Pro4-M is the lower-end model with no USB 3.0 header, two less USB 3.0 ports and SATA ports pointing upwards (which we know by now is not desirable). Both these boards support the UEFI BIOS.

Winner: In case of the A75 boards the pricing was very close, so we decided to just award one board. ASRock A75 Extreme 6 won the Best Buy award. Its features were neck-to-neck with the ASUS F1A75 V Pro, but the Extreme 6 had better build quality, dedicated power/reset buttons and a slightly better board layout. Also, features such as a dedicated power/reset button and a POST debug LED gave the Extreme 6 a push in the right direction.

If you don't intend to spend that much, you can go for the ECS A75F-M. The other good board is the Gigabyte A75M-UD2H.