Powerful and VFM

AMD's latest desktop platform is ideal for mainstream PCs and HTPCs. We tested motherboards for all budgets supporting AMD's Fusion APUs.

BY **ANAND TULIANI**

Accelerated Processing Units or APUs are a completely different ball game. Unlike Intel's Sandy Bridge processors, which feature a discrete graphics processor in a single package, APUs are general purpose x86 CPU cores with the ability to accelerate graphics as well. Be it applications that use vector processing, high definition entertainment, or casual gaming, it's all handled by the APU. So what you get with an APU is superior performance along with energy efficiency. Like any other desktop CPU, APUs are available at various price points and they differ in speed, number of CPU cores, number of Radeon cores and GPU clock speed.

AMD has two chipsets for their desktop line-up of Fusion APUs – A75 and A55. While the former is targeted at those who need more premium features and performance, the latter is wallet-friendly, with fewer features. The two don't differ significantly in the number of features, but A55 misses out on some key features such as native support for USB 3.0, SATA 6 Gb/and FIS

Base Switching for RAID setups which are all present in A75. An interesting feature available in both the chipsets is AMD Radeon Dual Graphics. It allows you to club an entry level Radeon HD 6000 discrete GPU with the graphics co-processor in the APU. As a result, in addition to leveraging the power of the discrete GPU on application demand, the rendering power of both the integrated and discrete graphics can be combined for enhanced performance.

Several motherboards based on AMD A75 and A55 chipsets by all major brands are already available on shelves. In this comparison, we tested and compared ten motherboards from the top brands. We were greatly impressed with the various feature sets offered and the form factors to choose from. The next few pages will tell you which are the best available options and our comparative table will help you pick the board that best suits your needs and budget.

Jagdish Limbachiya   Joshua Navalkar

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TEST PROCESS

Our test process is based on the following parameters:

Features: Here, we log the specifications of each subsystem. We begin by noting the type and amount of system memory supported by the motherboard. Later, the different types of supported video outputs are noted. Motherboards featuring a higher number of expansion slots score greater points. Also noted is the number of USB 2.0, USB 3.0 and FireWire ports available both on the rear panel as well as in the form of on-board headers. Other usual features, such as the presence of all-solid capacitors, and the number of CPU power phases were also noted.

Performance: If performance is what you crave, take a look at the performance scores in the comparison tables. Boards that can handle jobs like file compression, ray tracing, and video encoding in a shorter time have a better chance of bagging our Best Performance award. We tested the performance of each motherboard using the following hardware:

Processor: AMD A8-3850

RAM: Corsair XMS31600C9DHX 4 GB DDR3 kit

Hard drive: Plextor PX-256M2S, 256 GB SSD

Graphics card: AMD Radeon HD6870

Power Supply: Cooler Master Silent Pro Gold 800 Watts

Real-world Test Parameters

File compression: Time taken to compress 100 MB of multiple files to 7zip format using the Ultra preset 256-bit encryption.

Video encoding: Time taken to convert a 1-minute MPEG video to H.264 format (2nd pass).

Ray tracing: Time taken to ray trace an 800x600 scene with a bit of AA thrown in.

Gaming: We ran the built-in benchmarks in Crysis Warhead and Mafia II at 1920x1080.

Layout: The placement of the RAM slots, SATA ports, on-board headers and power connectors are vital for cable management and airflow inside a PC case. Higher points were granted to boards that had neatly placed RAM slots and SATA ports, which do not get in the way of large graphics cards or power cables.

Warranty: Last but not the least, the warranty offered by the manufacturer is vital. Boards with longer warranty periods were awarded higher points.

Built-in Wi-Fi adapter is a useful feature for wireless Internet connectivity and media streaming.

CHIP BEST PERFORMANCE NOV 2011

VERDICT

AN EXCELLENT MOTHERBOARD FOR BUILDING A TOP-NOTCH AMD FUSION-POWERED PC.

SPECIFICATIONS

Rs 8,250

Chipset: **AMD A75**; RAM slots: **4**; Expansion slots: **2x PCIE x16, 2x PCIE x1 and 3 PCI**; SATA | USB ports: **7 | 16**; Video outputs: **DVI, D-sub, HDMI and DP.**

CONTACT	Asus Technology
PHONE	022-67668800
EMAIL	reachus@asus.com

RATINGS

BUILD QUALITY	✪✪✪✪✪
FEATURES	✪✪✪✪✪
PERFORMANCE	✪✪✪✪✪
OVERALL RATING	✪✪✪✪✪
VALUE FOR MONEY	✪✪✪✪✪

ASUS F1A75-V PRO

Premium motherboards are built for those who don't want to compromise on features and performance, and the Asus F1A75-V Pro is one of them. It's built using high quality components and with attention paid to the layout. The full ATX form factor gives a lot of head room for components and Asus has used it well. A shiny heatpipe connects the heatsinks for the voltage phases and the chipset. Unlike most vendors who have gone in with a 4+1 phase design, Asus has used a 6+2 phase design for efficient power delivery. This is backed by Asus' Digi+ VRM, which uses two on-board processors – TPU (TurboV Processing Unit) and EPU (Energy Processing Unit). These chips optimize power delivery and overclocking as specified by the user. TPU and EPU can be toggled using switches near the memory slots. There are two PCIE x16 slots, two PCIE x1 slots and three PCI slots. The second PCIE x16 slot runs at 4x speed and you have the option to configure two graphics cards in CrossFireX. The SATA 6 Gb/s ports are oriented sideways so that they aren't obstructed by long graphics cards. However, with dual-slot graphics cards installed, you'll have to sacrifice a PCIE x1 slot and a PCI slot. Four USB 2.0 headers supporting two ports each are lined up at the base and a USB 3.0 header is placed next to the first PCIE x16 slot. The rear panel looks elaborate, with multiple options for display connectivity, four USB 3.0 ports, two USB 2.0 ports, a Gigabit Ethernet port, optical S/PDIF output and audio jacks for 7.1-channel setups. The performance is top notch, but it shines when you correctly use the TPU and EPU features for maximizing performance and overclocking. The board features a graphical UEFI BIOS, which makes it easy to navigate sections and change values. The BIOS has the easy mode for those who aren't well-versed with the various parameters. If you're planning to build a high-end HTPC or a gaming PC and budget is not a constraint, this board is one of the best options in the market.

FOR: Heat pipe cooling, excellent layout, graphical UEFI BIOS, OC switch.

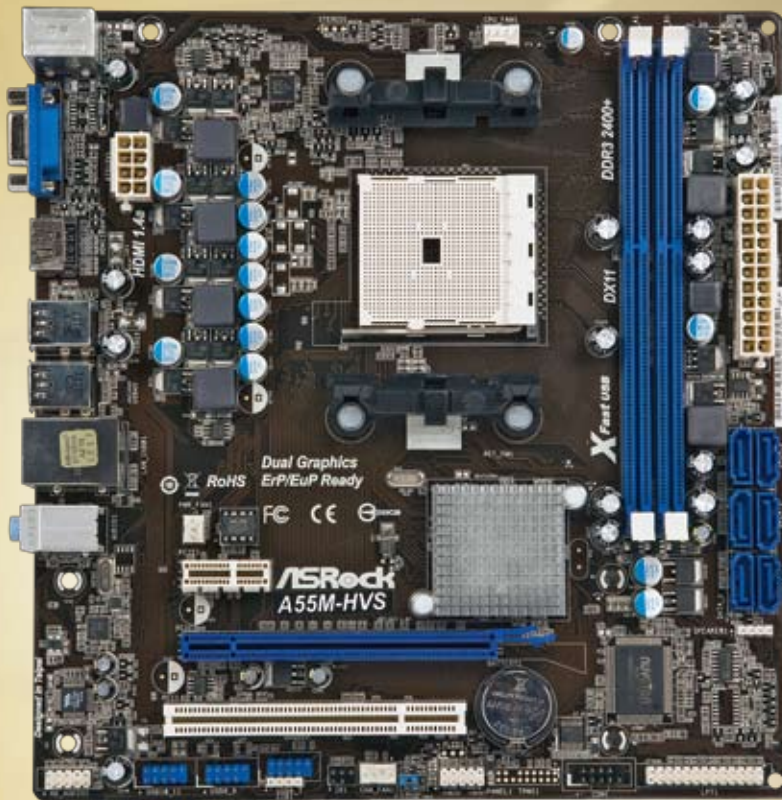**AGAINST:** Asus should have included a USB 3.0 bracket.

Joshua Navalkar

ASROCK A55M-HVS

The AMD A55 is ideal for those who want to build a PC on a shoestring budget or want to build a basic PC for home or office use. The ASRock A55M-HVS was the cheapest motherboard in the round-up, and for its price, it offers a decent feature set. The AMD A55 chipset lacks significant features such as native support for USB 3.0 and SATA 6 Gb/s. So if a manufacturer has to offer these features, they will have to be provided using discrete controllers. ASRock has gone with just the bare minimum to offer this board at an affordable price. This is very obvious with the usage of electrolytic capacitors instead of solid ones, fewer power phases for the CPU, two memory slots, and the lack of USB 3.0 or SATA 6 Gb/s ports. The rear panel looks bare compared to the A75 chipset-based boards because there are no DVI, DisplayPort, USB 3.0 or eSATA ports. What you get are six USB 2.0 ports, D-sub and HDMI video outputs, PS/2 ports for input devices, a Gigabit Ethernet port and 5.1-channel audio jacks. These features, along with six SATA 3 Gb/s ports and a few USB 2.0 headers for additional jacks on the front of the PC case, are good enough to build a basic PC. If you want more power for games, you can add a graphics card for which a PCIE x 16 slot is provided. You also get a PCIE x1 and a PCI slot for adding expansion cards, but if you add a dual-slot graphics card, you'll lose the PCI slot just below. The layout of the board is excellent. There's ample clearance around the CPU socket and the SATA ports are placed well above the level at which the PCIE x16 slot is located. However, routing the SATA cables would have been easier had the ports been oriented outward. The performance of the board is optimal at default settings, and we don't recommend overclocking using this motherboard even though the options are provided in the UEFI BIOS. However, we would have liked if there were at least two USB 3.0 ports on the rear panel or a USB 3.0 header. This board is a good deal for its price.

FOR: Great value for money, decent feature set.

AGAINST: USB 3.0 ports would have been useful.

VERDICT

A GREAT PICK IF YOU WANT TO BUILD A PC WITH A VERY LIMITED BUDGET IN HAND.

SPECIFICATIONS

Rs 3,890

Chipset: **AMD A55**; RAM slots: **2**; Expansion slots: **1x PCIE x16, 1x PCIE x1 and 1 PCI**; SATA | USB ports: **6 | 12**; Video outputs: **DVI and HDMI.**

CONTACT	Jupiter International
PHONE	1800-345-3030
EMAIL	info@asrock.com.tw

RATINGS

BUILD QUALITY	OOOOO
FEATURES	OOOOO
PERFORMANCE	OOOOO
OVERALL RATING	OOOOO
VALUE FOR MONEY	OOOOO

PERSONAL TAKE

ANAND TULIANI
anand.tuliani@chip.in

AMD's Fusion platform addresses the mainstream and home theater PC segments. This is very evident with the kind of power the processors deliver and the feature sets offered by the motherboards. Also, if you build a PC with the combination of the most powerful CPU (AMD A3850) and the best performer in the round-up, it won't pinch you as much as it would if you had to build a high-end gaming PC. Choosing the ideal graphics card or motherboard that suits your budget and caters to you needs at the same time can be tricky, but with a comparison table that lists all the features and performance scores, the buying process becomes easy. It's simple for home theater enthusiasts who need a compact PC because there are very few mini-ITX motherboards to choose from, such as the Zotac A75-ITX WiFi. I found this motherboard the most interesting because even though it's as small as a mouse pad, it packs an incredible feature set. It's future-proof with USB 3.0 and SATA 6 Gb/s ports and the built-in Wi-Fi adapter is a big bonus; no need of cables for Internet connectivity, and it enables sharing files and streaming media over the network wirelessly. You also have the option of building a gaming PC by adding a discrete graphics card.

Those who want to build a mainstream PC, run your finger through the overall Feature scores and the prices of motherboards. In contrast to the A75 motherboards, the two boards based on the A55 chipset score slightly more than half the overall Feature score of the A75 boards. They cost significantly less because they have fewer RAM slots and video outputs and they don't have USB 3.0 or SATA 6 Gb/s ports. Unless you're on a very tight budget, I suggest you spend around Rs 2,500 more and opt for a board based on the A75 chipset. The Asus F1A75-V Pro is the best in the segment, with a combination of a brilliant feature set and stellar performance. The next best option is the ASRock A75 Extreme 6, which is equally good in performance and offers a compelling feature set for its price. However, these two boards and the Gigabyte GA-A75-D3H are ideal only if you have at least a mid-tower cabinet with ample room to house large components. If you wish to go in for a micro-ATX motherboard, the ASRock A75 Pro4-M and MSI A75MA-G55 are the best choices.

SpecScan

NAME	ASROCK A75 EXTREME 6	ASUS F1A75-V PRO	
Contact	Jupiter International	Asus Technology	
Phone	1800-345-3030	022-67668800	
E-mail	info@asrock.com.tw	reachus@asus.com	
Price*	Rs. 7,500	Rs. 8,250	
OVERALL			
Features (45%)	65	66	
Layout (10%)	98	99	
Performance (40%)	99	99	
Warranty (5%)	100	94	
Overall (Out of 100)	**83**	**83**	
Value For Money	⬤⬤⬤⬤⚪ (4)	⬤⬤⬤⚪⚪ (3)	
FEATURES			
DDR3 memory: Slots | Max speed | Max capacity	4 | 1866 MHz | 32 GB	4 | 1866 MHz | 32 GB	
Video out: DVI | D-Sub | HDMI | DP	✔ | ✔ | ✔ | ✘	✔ | ✔ | ✔ | ✔	
Expansion slots: PCIe x16 | PCIe x1 | PCI	3 | 1 | 2	2 | 2 | 3	
Multi-GPU support | Mode	CrossFireX | 4x	CrossFireX | 4x	
SATA ports	8 x 6 Gb/s	7 x 6 Gb/s	
Audio jack format	7.1-channel	7.1-channel	
S/PDIF: Co-axial | Optical	✘ | ✔	✘ | ✔	
USB 2.0: Rear panel | Via headers	2 | 4	2 | 8	
USB 3.0: Rear panel | Via headers	2 | 2	4 | 2	
FireWire: Rear panel | Via headers	1 | 1	None	
Gigabit ethernet ports	1	1	
eSATA | All solid capacitors | CPU power phases	✔ | ✔ | 10	✔ | ✔ | 8	
On-board: Wi-Fi | OC Button | LED debugger	✘ | ✘ | ✔	✘ | ✔ | ✘	
BIOS features: UEFI | User profiles | Flashing tool	✔ | ✔ | ✔	✔ | ✔ | ✔	
Bundled cables and brackets: SATA | USB 2.0 | USB 3.0	4 | ✘ | ✘	2 | ✘ | ✘	
LAYOUT			
Clearance around CPU socket	5	5	
Placement: 12 V power | Main power	5 | 5	5 | 5	
DIMM | SATA | Headers	5 | 5 | 5	5 | 4.5 | 5	
Heatsink for voltage regulators	✔	✔	
Quality of heatsinks used	4	5	
PERFORMANCE			
SYNTHETIC			
SiSoft Sandra 2011			
Processor multimedia	64.2 MPix/s	64.1 MPix/s	
Memory bandwidth	6.83 GB/s	7.64 GB/s	
Media transcoding	490 KB/s	505 KB/s	
PCMark Vantage: Overall | Mem | Gaming | Productivity	10450 | 8050 | 11957 | 13750	10764 | 8235 | 11385 | 13323	
3DMark 11: Overall | GPU | Physics | Combined	3950 | 3990 | 3935 | 3400	3915 | 3991 | 3941 | 3397	
CineBench R11 | 7.Zip benchmark	3.45 Pts | 10650 MIPS	3.44 Pts | 10673 MIPS	
REAL WORLD			
File compression | Video encoding | Ray tracing	55 sec | 52 sec | 38.24 sec	55 sec | 52 sec | 37.88 sec	
GAMING			
Crysis Warhead (1920x1080, Enthusiast)	35.65 fps	35.68 fps	
Mafia II (1920x1080, Very High, AA enabled)	47.3 fps	46.7 fps	
WARRANTY			
Warranty period	3.2 years (38 mths)	3 years	

Scores out of 5   * *Prices are indicative and are subject to change, taxes extra*

📷 Joshua Navalkar

	3	4	5	6	7
	ASROCK A75 PRO4-M	GIGABYTE GA-A75-D3H	GIGABYTE GA-A75M-UD2H	MSI A75MA-G55	GIGABYTE GA-A75M-D2H
	Jupiter International	Gigabyte Technology	Gigabyte Technology	MSI India	Gigabyte Technology
	1800-345-3030	022-40633222	022-40633222	1800-200-0004	022-40633222
	info@asrock.com.tw	sales@gigabyte.in	sales@gigabyte.in	marketingindia@msi.com	sales@gigabyte.in
	Rs. 5,950	Rs. 7,020	Rs. 6,100	Rs. 6,860	Rs. 6,370
Bar chart	52 / 95 / 99 / 100	53 / 82 / 100 / 94	53 / 93 / 99 / 94	51 / 95 / 99 / 94	40 / 79 / 99 / 94
Score	78	77	77	77	70
Stars	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★☆☆
	4 | 1866 MHz | 32 GB	4 | 1866 MHz | 32 GB	4 | 1866 MHz | 32 GB	4 | 1866 MHz | 32 GB	2 | 1866 MHz | 16 GB
	✔|✔|✔|✖	✔|✔|✔|✖	✔|✔|✔|✔	✔|✔|✔|✖	✔|✔|✔|✖
	2 | 0 | 2	2 | 2 | 3	2 | 1 | 1	2 | 1 | 1	2 | 1 | 0
	CrossFireX | 4x	CrossFireX | 4x	CrossFireX | 4x	CrossFireX | 4x	CrossFireX | 4x
	5 x 6 Gb/s	5 x 6 Gb/s	5 x 6 Gb/s	6 x 6 Gb/s	6 x 6 Gb/s
	7.1-channel	7.1-channel	7.1-channel	7.1-channel	5.1-channel
	✖|✔	✖|✔	✖|✔	✖|✖	✖|✔
	2 | 6	2 | 6	4 | 4	4 | 4	4 | 2
	4 | 0	4 | 2	2 | 2	2 | 2	2 | 2
	None	None	1 | 1	None	None
	1	1	1	1	1
	✔|✔|5	✔|✔|5	✔|✔|5	✖|✔|4	✖|✔|5
	None	None	None	None	None
	✔|✖|✔	✖|✖|✔	✖|✖|✔	✔|✔|✔	✖|✖|✔
	2|✖|✖	4|✖|✖	4|✖|✖	2|✖|✔	4|✖|✖
	5	5	5	5	5
	5 | 5	5 | 5	4 | 5	5 | 5	5 | 5
	4.5 | 4 | 5	5 | 4.5 | 5	5 | 4 | 5	4 | 4.5 | 5	4.5 | 4 | 5
	✔	✖	✔	✔	✖
	4	4	4	4.5	4
	64.11 MPix/s	64.21 MPix/s	64 MPix/s	64 MPix/s	64.13 MPix/s
	6.87 GB/s	6.85 GB/s	6.84 GB/s	6.83 GB/s	6.84 GB/s
	495 KB/s	508 KB/s	502 KB/s	501 KB/s	503 KB/s
	10412 | 7791 | 11847 | 12997	11038 | 8407 | 12037 | 14215	10612 | 7959 | 12119 | 13742	10895 | 8124 | 11421 | 13073	10731 | 7983 | 10805 | 13448
	3997 | 4114 | 3920 | 3377	3878 | 3943 | 3951 | 3371	3910 | 3993 | 3928 | 3370	3864 | 3922 | 3936 | 3401	3881 | 3945 | 3947 | 3389
	3.45 Pts | 10644 MIPS	3.46 Pts | 10884 MIPS	3.47 Pts | 10789 MIPS	3.42 Pts | 10623 MIPS	3.48 Pts | 10439 MIPS
	55 sec | 52 sec | 38.91 sec	54 sec | 51 sec | 38.17 sec	55 sec | 51 sec | 38.2 sec	55 sec | 52 sec | 38.16 sec	55 sec | 52 sec | 38 sec
	35.75 fps	35.72 fps	35.78 fps	35.84 fps	35.83 fps
	47.4 fps	47 fps	47.3 fps	47.4 fps	46.7 fps
	3.2 years (38 mths)	3 years	3 years	3 years	3 years
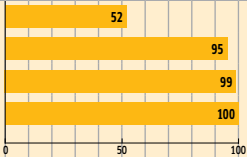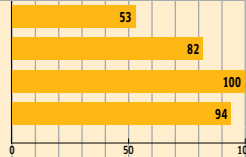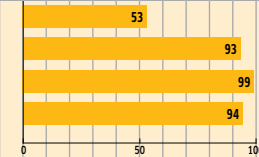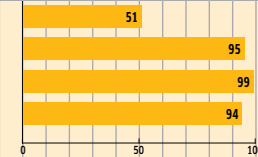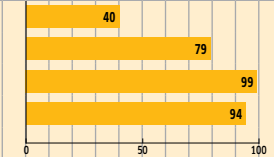
SpecScan

NAME	**ZOTAC A75-ITX WIFI**	**ASROCK A55M-HVS**	**GIGABYTE GA-A55M-S2V**
Contact	Zotac International	Jupiter International	Gigabyte Technology
Phone	9891282522	1800-345-3030	022-40633222
E-mail	tarun.kalra@neoteric.co.in	info@asrock.com.tw	sales@gigabyte.in
Price*	Rs. 8,100	Rs. 3,890	Rs. 4,500
OVERALL			
Features (45%)	36	32	3
Layout (10%)	73	77	78
Performance (40%)	99	99	99
Warranty (5%)	94	100	94
Overall (Out of 100)	**68**	**67**	**65**
Value For Money	✪✪✪✪✩	✪✪✪✪✪	✪✪✪✪✩
FEATURES			
DDR3 memory: Slots | Max speed | Max capacity	2 | 1866 MHz | 8 GB	2 | 1866 MHz | 16 GB	2 | 1866 MHz | 16 GB
Video out: DVI | D-Sub | HDMI | DP	✔ | ✖ | ✔ | ✖	✔ | ✖ | ✔ | ✖	✔ | ✔ | ✖ | ✖
Expansion slots: PCIe x16 | PCIe x1 | PCI	1 | 0 | 0	1 | 1 | 1	1 | 2 | 1
Multi-GPU support | Mode	None	None	None
SATA ports	4 x 6 Gb/s	6 x 3 Gb/s	6 x 3 Gb/s
Audio jack format	7.1-channel	5.1-channel	5.1-channel
S/PDIF: Co-axial | Optical	✖ | ✔	✖ | ✖	✖ | ✖
USB 2.0: Rear panel | Via headers	0 | 2	6 | 6	4 | 4
USB 3.0: Rear panel | Via headers	6 | 2	None	None
FireWire: Rear panel | Via headers	None	None	None
Gigabit ethernet ports	2	1	1
eSATA | All solid capacitors | CPU power phases	✖ | ✔ | 5	✖ | ✖ | 4	✖ | ✔ | 4
On-board: Wi-Fi | OC Button | LED debugger	✔ | ✖ | ✖	None	None
BIOS features: UEFI | User profiles | Flashing tool	✔ | ✖ | ✖	✔ | ✔ | ✔	✖ | ✖ | ✔
Bundled cables and brackets: SATA | USB 2.0 | USB 3.0	3 | ✖ | ✖	2 | ✖ | ✖	2 | ✖ | ✖
LAYOUT			
Clearance around CPU socket	4	5	5
Placement: 12 V power | Main power	2 | 5	4 | 5	5 | 5
DIMM | SATA | Headers	4 | 2.5 | 2.5	5 | 4 | 5	4.5 | 4 | 5
Heatsink for voltage regulators	✔	✖	✖
Quality of heatsinks used	4	3.5	3.5
PERFORMANCE			
SYNTHETIC			
SiSoft Sandra 2011			
Processor multimedia	64 MPix/s	64 MPix/s	64.18 MPix/s
Memory bandwidth	7.36 GB/s	6.83 GB/s	6.84 GB/s
Media transcoding	500 KB/s	490 KB/s	505 KB/s
PCMark Vantage: Overall | Mem | Gaming | Productivity	10487 | 7399 | 11616 | 12912	10107 | 7760 | 12074 | 13456	10770 | 8159 | 11547 | 13972
3DMark 11: Overall | GPU | Physics | Combined	3903 | 3991 | 3879 | 3380	3986 | 4117 | 3865 | 3349	3882 | 3943 | 3926 | 3429
CineBench R11 | 7.Zip benchmark	3.44 Pts | 10630 MIPS	3.46 Pts | 10776 MIPS	3.45 Pts | 10688 MIPS
REAL WORLD			
File compression | Video encoding | Ray tracing	54 sec | 52 sec | 38.61 sec	55 sec | 52 sec | 38.53 sec	55 sec | 52 sec | 38.2 sec
GAMING			
Crysis Warhead (1920x1080, Enthusiast)	35.6 fps	35.81 fps	35.81 fps
Mafia II (1920x1080, Very High, AA enabled)	46.7 fps	47 fps	47 fps
WARRANTY			
Warranty period	3 years	3.2 years (38 mths)	3 years

Scores out of 5   ** Prices are indicative and are subject to change, taxes extra*