



# 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

**A**ccelerated 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.

## 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.





**VERDICT**

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

# 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.

**SPECIFICATIONS**

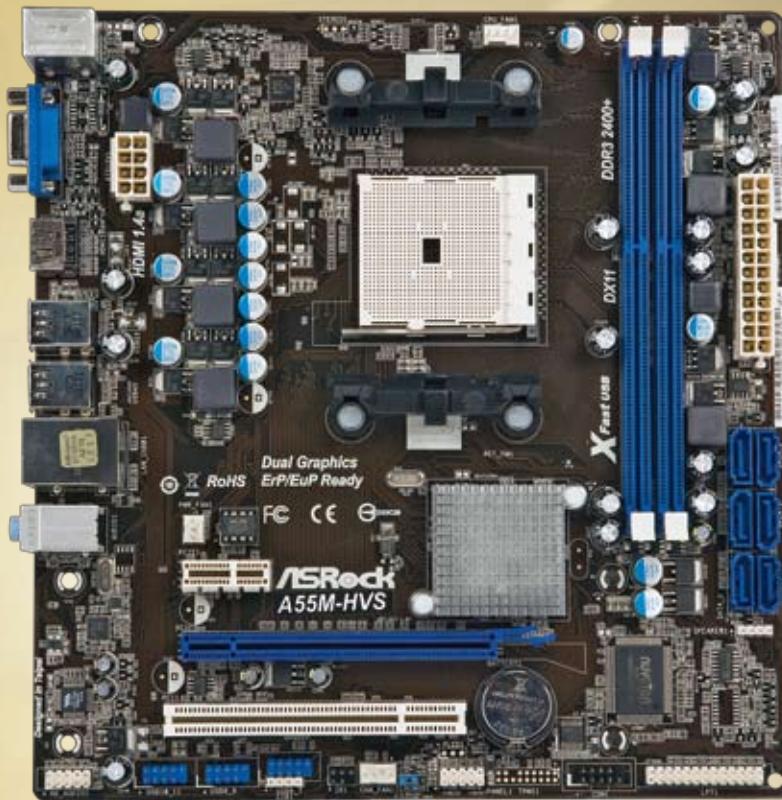
Rs 8,250

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**

<b>BUILD QUALITY</b>	★★★★★
<b>FEATURES</b>	★★★★★
<b>PERFORMANCE</b>	★★★★★
<b>OVERALL RATING</b>	★★★★★
<b>VALUE FOR MONEY</b>	★★★★★



# 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 x16 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

<b>BUILD QUALITY</b>	☆☆☆☆
<b>FEATURES</b>	☆☆☆☆
<b>PERFORMANCE</b>	☆☆☆☆
<b>OVERALL RATING</b>	☆☆☆☆
<b>VALUE FOR MONEY</b>	☆☆☆☆



## PERSONAL TAKE



**ANAND TULIANI**  
anand.tuliiani@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 your 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

1



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

Scores out of 5

\* Prices are indicative and are subject to change, taxes extra

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**ASROCK A75 PRO4-M**

Jupiter International  
1800-345-3030  
info@asrock.com.tw  
Rs. 5,950

**GIGABYTE GA-A75-D3H**

Gigabyte Technology  
022-40633222  
sales@gigabyte.in  
Rs. 7,020

**GIGABYTE GA-A75M-UD2H**

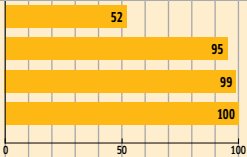
Gigabyte Technology  
022-40633222  
sales@gigabyte.in  
Rs. 6,100

**MSI A75MA-G55**

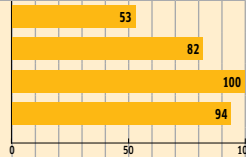
MSI India  
1800-200-0004  
marketingindia@msi.com  
Rs. 6,860

**GIGABYTE GA-A75M-D2H**

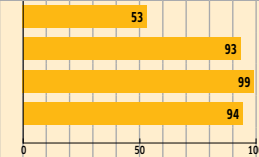
Gigabyte Technology  
022-40633222  
sales@gigabyte.in  
Rs. 6,370



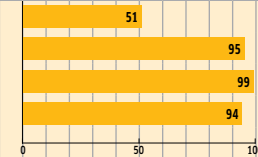
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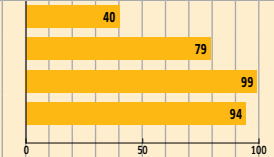
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77



77



70



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

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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
<b>OVERALL</b>			
Features (45%)			
Layout (10%)			
Performance (40%)			
Warranty (5%)			
<b>Overall (Out of 100)</b>	<b>68</b>	<b>67</b>	<b>65</b>
Value For Money	☆☆☆☆☆	☆☆☆☆☆	☆☆☆☆☆
<b>FEATURES</b>			
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   ✗   ✗
<b>LAYOUT</b>			
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
<b>PERFORMANCE</b>			
<b>SYNTHETIC</b>			
<b>SiSoft Sandra 2011</b>			
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
<b>REAL WORLD</b>			
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
<b>GAMING</b>			
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
<b>WARRANTY</b>			
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