Intel Desktop Computer Builds: February 2011

Original | No Header, No Background, No Images

Last Updated: 28Feb11 | Published: 21Jan11 | Status: Disontinued

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1. Introduction

! On January 31, 2011 Intel announced that an issue had been identified with the Intel Series 6 Chipset, that shipment of the affected chipset had been stopped, and that newly manufactured, corrected versions of the chipset will start shipping in late February. For additional information, see Chipset Circuit Design Issue Identified: Update February 7, 2011 (intel.com).

Earlier in January 2011, Intel launched the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family, which constitute the Intel socket LGA1155 platform. Currently, none of the builds described on this page are socket LGA1155.

A motherboard chipset (chipset, for short) is a defined set of capabilities upon which a motherboard is built. Specifically, a chipset defines: 1.) the processor, memory, expansion cards, data storage devices, and peripheral devices that are compatible with a motherboard; and 2.) the additional devices (e.g., audio and ethernet) and technologies (e.g., RAID and power management) that are integrated into a motherboard. In other words, a chipset defines a motherboard's capabilities, which, in turn, defines a computer's capabilities. Therefore, when building a computer, the chipset is the most important computer component to choose wisely.

There are two types of desktop chipsets: 1.) AMD desktop chipsets, which support AMD desktop processors; and 2.) Intel desktop chipsets, which support Intel desktop processors. The current Intel desktop chipset manufacturer is Intel, which has a virtual monopoly on the Intel desktop chipset market. Past Intel desktop chipset manufacturers included ATI, Intel, NVIDIA, SiS, and VIA.

A motherboard is an implementation of a chipset. Motherboard manufacturers currently incorporating Intel desktop chipsets into their motherboards include ASRock, ASUS, BIOSTAR, ECS, EVGA, Foxconn, GIGABYTE, Intel, and MSI.

Based on chipset/processor, desktop computers are divided into two types (a.k.a., platforms): 1.) AMD desktop computers, which have an AMD desktop chipset/processor; and 2.) Intel desktop computers, which have an Intel desktop chipset/processor. Therefore, when building a desktop computer you must decide to build either an AMD desktop computer or an Intel desktop computer. This page describes Intel desktop computer builds based on price point and user need.

1.1. Component Overlay

Component considerations that serve as an overlay for each build and this page as a whole.

i For information on desktop computer components, see Builder's Guide To Desktop Computer Components (stevestechresource.com).

- Motherboard
  - Use latest Intel desktop chipsets: Intel H55 Express Chipset, Intel H57 Express Chipset, Intel H67 Express Chipset, Intel Q57 Express Chipset, Intel P55 Express Chipset, Intel P67 Express Chipset, and Intel X58 Express Chipset.
  - Use microATX form factor for Intel Desktop Computer 1 eMachine, 2 Basic, and 3 Intermediate. Use ATX form factor for Intel Desktop Computer 4 Performance and 5 Enthusiast.
  - Front USB and audio required. Therefore, case and motherboard must support front USB and audio.
  - Manufacturers considered: ASUS, GIGABYTE, Intel, and MSI.
- Processor
  - Use latest Intel desktop processors: Intel Pentium Processor G6950, Intel Core i3 Processor, Intel Core i5 Processor, Intel

Core i7 Processor, and Intel Core i7 Processor Extreme Edition.
- No overclocking. Therefore, no fancy processor cooling system required. Get boxed processor and use factory heat sink/fan.

- Memory
  - No overclocking. Therefore, no fancy memory cooling system required. Get value memory that passed motherboard testing.
  - Manufacturers considered: Kingston.
- GPU
  - Intel HD Graphics is latest Intel integrated graphics solution. Intel HD Graphics is built into the latest Intel processors, not the motherboard chipset. The latest Intel desktop processors code named Clarkdale and Sandy Bridge include Intel HD Graphics. The latest Intel desktop processors code named Lynnfield, Bloomfield, and Gulftown do not include Intel HD Graphics. Motherboard support for Intel HD Graphics is simply providing video out connectors and an interface to the processor integrated GPU. The Intel H55 Express Chipset, Intel H57 Express Chipset, Intel H67 Express Chipset, and Intel Q57 Express Chipset support Intel HD Graphics. The Intel P55 Express Chipset, Intel P67 Express Chipset, and Intel X58 Express Chipset do not support Intel HD Graphics.
  - Use Intel HD Graphics for Intel Desktop Computer 1 eMachine. Use add-in GPU for all other builds. Use add-in GPU that does not require PCIe power connector for Intel Desktop Computer 2 Basic and 3 Intermediate. Use add-in GPU that requires PCIe power connector for Intel Desktop Computer 4 Performance and 5 Enthusiast.
  - Follow Tom's Hardware recommendations.
  - ATI add-in GPU manufacturers considered: Sapphire.
- Hard Drive
  - SATA 6.0Gb/s not required for Intel Desktop Computer 1 eMachine, 2 Basic, or 3 Intermediate. SATA 6.0Gb/s required for Intel Desktop Computer 4 Performance and 5 Enthusiast.
  - Manufacturers considered: Western Digital.
- CD/DVD Burner
  - Not interested in Blu-ray support.
  - Issues with Pioneer DRV-112D and Plextor PX-740A have me interested in trying a CD/DVD burner manufacturer other than Pioneer or Plextor. That 4x Newegg Customer Choice Award Winner - CD/DVD burner is an ASUS model made the decision easy.
- USB
  - USB 3.0 not required for Intel Desktop Computer 1 eMachine, 2 Basic, or 3 Intermediate. USB 3.0 required for Intel Desktop Computer 4 Performance and 5 Enthusiast.
  - Front USB required. Therefore, case and motherboard must support front USB. Front USB does not need to be USB 3.0.
- Audio
  - Integrated audio is sufficient.
  - Front audio required. Therefore, case and motherboard must support front audio.
- Case
  - No neon colors, no lights, no see through side panels, no crazy designs: appearance must be business-like.
  - One case mounted fan required. No overclocking. Therefore, no fancy case cooling system required and one case mounted fan is sufficient.
  - Use mini tower/small mid tower for Intel Desktop Computer 1 eMachine. Use small mid tower for Intel Desktop Computer 2 Basic. Use mid tower or larger for Intel Desktop Computer 3 Intermediate, 4 Performance, and 5 Enthusiast.
  - Front USB and audio required. Therefore, case and motherboard must support front USB and audio.
  - Manufacturers considered: Antec, Cooler Master, Lian Li, and Thermaltake.
- Power Supply
  - ATX12V v2.2 compliant or above required.
  - Must provide all required connectors. No mismatched connectors. No adapters.
  - Manufacturers considered: Antec, Cooler Master, and Thermaltake.
- Legacy Devices
  - VGA, IDE, FDD, PCI, serial (COM) port/internal header, parallel port/internal header, PS2 keyboard, and PS2 mouse support is not required.

1.2. Changes From Intel Desktop Builds: January 2011 (stevestechresource.com)

- Intel Desktop eMachine renamed Intel Desktop Computer 1 eMachine (Model: IDC1-EMA):
  - Updated the Specification Summary for the recently launched Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.
  - Added Note that the Intel Desktop Computer 1 eMachine is not likely to be affected by the launch of the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.
- Intel Desktop Workstation 1 Entry renamed Intel Desktop Computer 2 Basic (Model: IDC2-BAS):

  - Updated the Specification Summary for the recently launched Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.
  - Added Important Note that the Intel Desktop Computer 2 Basic will be updated to the Intel socket 1155 platform as soon as the 2nd Generation Intel Core i3 Processors are launched.
- Intel Desktop Workstation 2 Intermediate renamed Intel Desktop Computer 3 Intermediate (Model: IDC3-INT):
  - Updated the Specification Summary for the recently launched Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.
  - Added Important Note that the Intel Desktop Computer 3 Intermediate will be updated to the Intel socket 1155 platform as soon as customer reviews of the Intel P67 Express Chipset motherboards come in, and that it will be updated to an Intel P67 Express Chipset motherboard that is 2 x PCIe 2.0 x16 (dual at x8/x8) in order to make it an entry level gaming machine.
- Intel Desktop Workstation 3 Performance renamed Intel Desktop Computer 4 Performance (Model: IDC4-PER):
  - Updated the Specification Summary for the recently launched Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.
  - Added Note that the Intel Desktop Workstation 3 Performance is not likely to be affected by the launch of the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family..
- Intel Desktop Enthusiast renamed Intel Desktop Computer 5 Enthusiast (Model: IDC5-ENT):
  - Build TBA.

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2. Intel Desktop Computer 1 eMachine (Model: IDC1-EMA)

Intended For:

- Casual/budget user wanting the minimum for Internet, Microsoft Office, and viewing multimedia content.

Specification Summary:

- Lowest cost Intel socket LGA1155, LGA1156, or LGA1366 chipset supporting Intel HD Graphics: Intel H55 Express Chipset (socket LGA1156).
- Lowest cost motherboard form factor/case size: microATX/mini tower.
- Lowest cost Intel socket LGA1155, LGA1156, or LGA1366 processor with Intel HD Graphics: Intel Pentium Processor G6950 (socket LGA1156).
- Lowest cost GPU: Intel HD Graphics.
- 2GB memory.

i In January 2011, Intel launched the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family, which constitute the Intel socket LGA1155 platform. The Intel Series 6 Chipset family includes the Intel H67 Express Chipset, Intel P67 Express Chipset, Intel Q67 Express Chipset, and Intel B65 Express Chipset. The Intel H67 Express Chipset and Intel P67 Express Chipset have been launched and the Intel Q67 Express Chipset and Intel B65 Express Chipset are scheduled to launch on 20Feb11. The 2nd Generation Intel Core Processor family includes 2nd Generation Intel Core i3 Processors, 2nd Generation Intel Core i5 Processors, and 2nd Generation Intel Core i7 Processors. The 2nd Generation Intel Core i5 Processors and 2nd Generation Intel Core i7 Processors have been launched and the 2nd Generation Intel Core i3 Processors are scheduled to launch on 20Feb11. Prices for the 2nd Generation Intel Core i3 Processors have not been announced. How these developments affect the Intel Desktop Computer 1 eMachine is as follows.

The Intel Desktop Computer 1 eMachine is meant to be an Intel socket LGA1155, LGA1156, or LGA1366 computer with name brand components costing as little as reasonably possible. To merit updating the Intel Desktop Computer 1 eMachine to the LGA1155 platform, the combined cost for an Intel socket LGA1155 motherboard and processor would have to be under $200. Currently, the lowest priced Intel H67 Express Chipset motherboard from ASUS, GIGABYTE, Intel, or MSI is $100. The 2nd Generation Intel Core i3 Processors are likely to be priced similar to the Intel Core i3 Processors, which is $110-140. Therefore, the Intel Desktop Computer 1 eMachine is not likely to be affected by the launch of the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.

Intel Desktop Computer 1 eMachine (Model: IDC1-EMA)			
Comp	**Spec**	**Note**	**Retail**
Mother-board	GIGABYTE GA-H55M-S2V (rev. 1.4) (gigabyte.com): • Intel H55 Express Chipset (intel.com) / LGA1156 / microATX. • 1 x 24 pin motherboard main / 1 x 4 pin ATX 12V CPU. • Dual channel memory / 2 DIMMs / 1.5V / DDR3-800/1066/1333 SDRAM / 16GB max. • Supports Intel HD Graphics. 1 x DVI-D / 1 x VGA. • 1 x PCIe 2.0 x16 / 1 x PCIe x1 / 2 x PCI. • 6 x internal SATA 3.0Gb/s.	• microATX. • SATA 3.0Gb/s. USB 2.0. • Selected GIGABYTE GA-H55M-S2V over more PCIe 2.0 slot providing second and third place finishers below because it does not have a single negative review - not even a purported DOA - at Newegg (16 total). • Second place: ASUS P7H55-M LX	$85

	• 12 x USB 2.0 (8 x back + 4 x internal header). Audio header. • 1 x gigabit (10/100/1000Mb/s) ethernet.	(usa.asus.com) $85. • Third place: MSI H55M-E23 (us.msi.com) $85.	
Processor	Intel Pentium Processor G6950 (ark.intel.com): • 3MB Cache / 2.8GHz / 2.5GT/s / LGA1156 / 32nm / Clarkdale. • Dual core no Intel Hyper-Threading Technology (2C/2T). • Dual channel memory / DDR3-1066 SDRAM / 17.1GB/s max bandwidth. • Intel 64 / Intel VT-x / No Intel Turbo Boost / Intel HD Graphics.		$100
Memory	KVR1066D3N7K2/2G (shop.kingston.com): • 2GB DDR3-1066 SDRAM / 1.5V / Non-ECC / CL7 / Kit 2 x 1GB.	• 1066MT/s x 8B/T x 2 channels = 17.1GB/s, which equals the Pentium Processor G6950 max memory bandwidth.	$30
GPU	Intel HD Graphics (intel.com): • 1 x DVI-D / 1 x VGA.		$0
Hard Drive	Western Digital WD5000AAKS (wdc.com): • Caviar Blue / 500GB / SATA 3.0Gb/s / 16MB Cache / 7200rpm.		$55
CD/DVD Burner	ASUS DRW-24B1ST: • SATA. 2MB Cache. • 24X DVD+R/8X DVD+RW/12X DVD+R DL/24X DVD-R/6X DVD-RW/12X DVD-RAM/16X DVD-ROM/48X CD-R/32X CD-RW/48X CD-ROM.	• 4x Newegg Customer Choice Award Winner - CD/DVD Burners.	$25
Case/ Power Supply	Cooler Master Elite 342 case with Cooler Master Elite Power 400W power supply (coolermaster-usa.com): • 352 x 180 x 440 (H x W x D) (mm). • 2 x external 5.25" / 1 x external 3.5" / 5 x internal 3.5". • 4 x expansion. • I/O panel: Mid front / 2 x USB 2.0 / Audio. • Fans included: Front 1 x 120mm 1200rpm. • Cooler Master Elite Power 400W power supply. • ATX 12V v2.31. • 1 x 20+4 pin motherboard main / 1 x 4+4 pin ATX/EPS 12V CPU / 1 x 6 pin PCIe / 4 x SATA / 3 x molex / 1 x floppy.	• Mini tower. • Supports microATX, not ATX motherboards. • Removable hard drive cage. • Case 4kg.	$70
Intel Desktop Computer 1 eMachine (Model: IDC1-EMA)			$365

3. Intel Desktop Computer 2 Basic (Model: IDC2-BAS)

Intended For:

- Normal home/office user.

Specification Summary:

- Inexpensive Intel socket LGA1155, LGA1156, or LGA1366 chipset: Intel H55 Express Chipset (socket LGA1156), Intel H57 Express Chipset (socket LGA1156), Intel H67 Express Chipset (socket LGA1155), or Intel Q57 Express Chipset (socket LGA1156).
- Inexpensive motherboard form factor/case size: microATX/small mid tower.
- Inexpensive Intel Core processor: Intel Core i3 Processor (socket LGA1156, 2nd Gen is socket LGA1155).
- Inexpensive add-in GPU.
- 4GB memory.

! In January 2011, Intel launched the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family, which constitute the Intel socket LGA1155 platform. The Intel Series 6 Chipset family includes the Intel H67 Express Chipset, Intel P67 Express Chipset, Intel Q67 Express Chipset, and Intel B65 Express Chipset. The Intel H67 Express Chipset and Intel P67 Express Chipset have been launched and the Intel Q67 Express Chipset and Intel B65 Express Chipset are scheduled to launch on 20Feb11. The 2nd Generation Intel Core Processor family includes 2nd Generation Intel Core i3 Processors, 2nd Generation Intel Core i5 Processors, and 2nd Generation Intel Core i7 Processors. The 2nd Generation Intel Core i5 Processors and 2nd Generation Intel Core i7 Processors have been launched and the 2nd Generation Intel Core i3 Processors are scheduled to launch on 20Feb11. Prices for the 2nd Generation Intel Core i3 Processors have not been announced. How these developments affect the Intel Desktop Computer 1 eMachine is as follows.

The Intel Series 6 Chipset includes SATA 6.0Gb/s integrated into the Platform Controller Hub (PCH). There are a handful of Intel H67 Express Chipset motherboards from ASUS, GIGABYTE, Intel, and MSI that also include USB 3.0 for under $130. The 2nd Generation Intel Core i3 Processors are likely to be priced similar to the Intel Core i3 Processors, which is $110-140. Therefore, the Intel Desktop Computer 2 Basic will be updated to the Intel socket 1155 platform as soon as the 2nd Generation Intel Core i3 Processors are launched.

Intel Desktop Computer 2 Basic (Model: IDC2-BAS)			
Comp	**Spec**	**Note**	**Retail**
Mother-board	MSI H55M-ED55 (us.msi.com): • Intel H55 Express Chipset (intel.com) / LGA1156 / microATX. • 1 x 24 pin motherboard main / 1 x 4 pin ATX 12V CPU. • Dual channel memory / 4 DIMMs / 1.5V / DDR3-1066/1333 SDRAM / 16GB max. • Supports Intel HD Graphics. 1 x HDMI / 1 x DVI-D / 1 x VGA. • 1 x PCIe 2.0 x16 / 1 x PCIe x16 (x4 mode) / 1 x PCIe x1 / 1 x PCI. • 6 x internal SATA 3.0Gb/s / 1 x back eSATA. • 12 x USB 2.0 (6 x back + 6 x internal header). Audio header. • 1 x gigabit (10/100/1000Mb/s) ethernet.	• microATX. • SATA 3.0Gb/s. USB 2.0. • Second PCIe x16 slot is x4 and from the H55 PCH (2.5GT/s), not x16 and PCI 2.0 (5.0GT/s) as the manual and online specs might lead one to believe. • Second place: Or for slightly more capable Intel Q57 Express Chipset (intel.com) Intel DQ57TM (intel.com) $120.	$100
Processor	Intel Core i3-550 Processor (ark.intel.com): • 4MB Cache / 3.20GHz / 2.5GT/s / LGA1156 / 32nm / Clarkdale. • Dual core with Intel Hyper-Threading Technology (2C/4T). • Dual channel memory / DDR3-1066/1333 SDRAM / 21.3GB/s max bandwidth. • Intel 64 / Intel VT-x / No Intel Turbo Boost / Intel HD Graphics.		$130
Memory	Kingston KVR1333D3N9K2/4G (shop.kingston.com): • 4GB DDR3-1333 SDRAM / 1.5V / Non-ECC / CL9 / Kit 2 x 2GB.	• 1333MT/s x 8B/T x 2 channels = 21.3GB/s, which equals the Intel Core i3-550 Processor max memory bandwidth.	$55
GPU	Sapphire ATI Radeon HD 4650 (Model: 100254HDMI): • 1GB DDR2 / 128-bit / 600MHz core / 800MHz memory effective. • 1 x PCIe 2.0 x16 / DX10.1 / SM4.1. • 1 x HDMI / 1 x Dual link DVI / 1 x VGA.	• Occupies one motherboard expansion slot and one case expansion slot. • No external power connector required. 400W power supply required. • Tom's Hardware Best Graphics Cards For The Money: December 2010 (tomshardware.com).	$70
Hard Drive	Western Digital WD5000AAKS (wdc.com): • Caviar Blue / 500GB / SATA 3.0Gb/s / 16MB Cache / 7200rpm.		$55
CD/DVD Burner	ASUS DRW-24B1ST: • SATA. 2MB Cache. • 24X DVD+R/8X DVD+RW/12X DVD+R DL/24X DVD-R/6X DVD-RW/12X DVD-RAM/16X DVD-ROM/48X CD-R/32X CD-RW/48X CD-ROM.	• 4x Newegg Customer Choice Award Winner - CD/DVD Burners.	$25
Case/ Power Supply	Cooler Master Sileo 500 case with Cooler Master eXtreme Power Plus 500W power supply (coolermaster-usa.com): • 432 x 200 x 480 (H x W x D) (mm). • 5 x external 5.25" / 1 x external 3.5" / 4 x internal 3.5". • 7 x expansion. • I/O panel: Mid front / 2 x USB 2.0 / 1 x eSATA / Audio. • Fans included: Front 1 x 120mm 800rpm / Back 1 x 120mm 800rpm. • Cooler Master eXtreme Power Plus 500W power supply.	• Small size mid tower. • Supports microATX and ATX motherboards. • 8kg.	$110

	• ATX 12V v2.3. • 1 x 20+4 pin motherboard main / 1 x 4+4 pin ATX/EPS 12V CPU / 1 x 6 pin PCIe / 4 x SATA / 5 x molex / 1 x floppy.		
Intel Desktop Computer 2 Basic (Model: IDC2-BAS)			$545

4. Intel Desktop Computer 3 Intermediate (Model: IDC3-INT)

Intended For:

- Home/office user who occasionally executes multiple system resource intensive applications simultaneously.
- Entry level gaming.

Specification Summary:

- Mid level Intel socket LGA1155, LGA1156, or LGA1366 chipset: Intel P55 Express Chipset (socket LGA1156) or Intel P67 Express Chipset (socket LGA1155).
- Inexpensive motherboard form factor/case size: microATX/small mid tower.
- Mid level Intel Core processor: Intel Core i5 Processor (socket LGA1156, 2nd Gen is socket LGA1155).
- Low/mid level add-in GPU.
- 8GB memory.

! In January 2011, Intel launched the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family, which constitute the Intel socket LGA1155 platform. The Intel Series 6 Chipset family includes the Intel H67 Express Chipset, Intel P67 Express Chipset, Intel Q67 Express Chipset, and Intel B65 Express Chipset. The Intel H67 Express Chipset and Intel P67 Express Chipset have been launched and the Intel Q67 Express Chipset and Intel B65 Express Chipset are scheduled to launch on 20Feb11. The 2nd Generation Intel Core Processor family includes 2nd Generation Intel Core i3 Processors, 2nd Generation Intel Core i5 Processors, and 2nd Generation Intel Core i7 Processors. The 2nd Generation Intel Core i5 Processors and 2nd Generation Intel Core i7 Processors have been launched and the 2nd Generation Intel Core i3 Processors are scheduled to launch on 20Feb11. Prices for the 2nd Generation Intel Core i3 Processors have not been announced. How these developments affect the Intel Desktop Computer 1 eMachine is as follows.

The Intel Series 6 Chipset includes SATA 6.0Gb/s integrated into the Platform Controller Hub (PCH). There are a couple of Intel P67 Express Chipset motherboards from ASUS, GIGABYTE, Intel, and MSI that also include USB 3.0 and 2 x PCIe 2.0 x16 (dual x8/x8 mode) for under $175. These motherboards are new and there is not enough customer reviews to determine if they are issue free. The 2nd Generation Intel Core i5-2400 Processor (ark.intel.com) $210 will replace the Intel Core i5-650 Processor (ark.intel.com) $185. Therefore, the Intel Desktop Computer 3 Intermediate build will be updated to the Intel socket 1155 platform as soon as customer reviews of the Intel P67 Express Chipset motherboards come in.

The Intel Desktop Computer 3 Intermediate will be updated to an Intel P67 Express Chipset motherboard that is 2 x PCIe 2.0 x16 (dual at x8/x8) in order to make it an entry level gaming machine.

Intel Desktop Computer 3 Intermediate (Model: IDC3-INT)			
Comp	**Spec**	**Note**	**Retail**
Mother-board	MSI P55M-GD45 (us.msi.com): • Intel P55 Express Chipset (intel.com) / LGA1156 / microATX. • 1 x 24 pin motherboard main / 1 x 4 pin ATX 12V CPU. • Dual channel memory / 4 DIMMs / 1.5V / DDR3-1066/1333 SDRAM / 16GB max. • No Intel HD Graphics support. Add-in GPU required. • 1 x PCIe 2.0 x16 / 1 x PCIe x16 (x4 mode) / 1 x PCIe x1 / 1 x PCI. • 6 x internal SATA 3Gbps / 2 x back eSATA. RAID. • 14 x USB 2.0 (10 x back + 4 x internal header). Audio header. • 1 x gigabit (10/100/1000Mb/s) ethernet.	• microATX. • SATA 3.0Gb/s. USB 2.0. • The second PCIe x16 slot is x4 and from P55 PCH (2.5GT/s), not PCI 2.0 (5.0GT/s) as manual and online specs might have one believe. • Second place: Or if P55 chipset without dual GPU x8/x8 compatibility seems strange for non-gaming computer, and spending more for motherboard without SATA 6.0Gb/s and USB 3.0 does not GIGABYTE GA-P55M-UD4 (gigabyte.com) $150.	$135
Processor	Intel Core i5-650 Processor (ark.intel.com): • 4MB Cache / 3.20GHz / 2.5GT/s / LGA1156 / 32nm / Clarkdale. • Dual core with Intel Hyper-Threading Technology (2C/4T). • Dual channel memory / DDR3-1066/1333 SDRAM / 21.3GB/s max bandwidth. • Intel 64 / Intel VT-x / Intel Turbo Boost / Intel HD Graphics.		$185

Memory	Kingston KVR1333D3N9K2/8G (shop.kingston.com): • 8GB DDR3-1333 SDRAM / 1.5V / Non-ECC / CL9 / Kit 2 x 4GB.	• 1333MT/s x 8B/T x 2 channels = 21.3GB/s, which equals the Intel Core i5-650 Processor max memory bandwidth.	$120
GPU	Sapphire ATI Radeon HD 5670 (Model: 100289L): • 1GB DDR5 / 128-bit / 775MHz core / 4000MHz memory effective. • 1 x PCIe 2.1 x16 / DX11 / SM5.0. • 1 x DisplayPort / 1 x HDMI / 1 x Dual link DVI. • ATI CrossFireX. ATI Eyefinity.	• Occupies one motherboard expansion slot and one case expansion slot. • No external power connector required. 400W power supply required. • Tom's Hardware Best Graphics Cards For The Money: December 2010 (tomshardware.com).	$120
Hard Drive	Western Digital WD10EALS (wdc.com): • Caviar Blue / 1.0TB / SATA 3.0Gb/s / 32MB Cache / 7200rpm.	• SATA 3.0Gb/s.	$80
CD/DVD Burner	ASUS DRW-24B1ST: • SATA. 2MB Cache. • 24X DVD+R/8X DVD+RW/12X DVD+R DL/24X DVD-R/6X DVD-RW/12X DVD-RAM/16X DVD-ROM/48X CD-R/32X CD-RW/48X CD-ROM.	• 4x Newegg Customer Choice Award Winner - CD/DVD Burners.	$25
Case/ Power Supply	Cooler Master Sileo 500 case with Cooler Master eXtreme Power Plus 500W power supply (coolermaster-usa.com): • 432 x 200 x 480 (H x W x D) (mm). • 5 x external 5.25" / 1 x external 3.5" / 4 x internal 3.5". • 7 x expansion. • I/O panel: Mid front / 2 x USB 2.0 / 1 x eSATA / Audio. • Fans included: Front 1 x 120mm 800rpm / Back 1 x 120mm 800rpm. • Cooler Master eXtreme Power Plus 500W power supply. • ATX 12V v2.3. • 1 x 20+4 pin motherboard main / 1 x 4+4 pin ATX/EPS 12V CPU / 1 x 6 pin PCIe / 4 x SATA / 5 x molex / 1 x floppy.	• Small size mid tower. • Supports microATX and ATX motherboards. • 8kg.	$110
Intel Desktop Computer 3 Intermediate (Model: IDC3-INT)			$775

5. Intel Desktop Computer 4 Performance (Model: IDC4-PER)

Intended For:

- Home/office user who frequently executes multiple system resource intensive applications simultaneously.
- Mid level gaming.

Specification Summary:

- High end Intel socket LGA1155, LGA1156, or LGA1366 chipset: Intel X58 Express Chipset (socket LGA1366).
- High end motherboard form factor/case size: ATX/large mid tower.
- High end Intel Core processor: Intel Core i7 Processor (socket LGA1366, 2nd Gen is socket LGA1155).
- Mid level add-in GPU.
- 12GB memory.

i In January 2011, Intel launched the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family, which constitute the Intel socket LGA1155 platform. The Intel Series 6 Chipset family includes the Intel H67 Express Chipset, Intel P67 Express Chipset, Intel Q67 Express Chipset, and Intel B65 Express Chipset. The Intel H67 Express Chipset and Intel P67 Express Chipset have been launched and the Intel Q67 Express Chipset and Intel B65 Express Chipset are scheduled to launch on 20Feb11. The 2nd Generation Intel Core Processor family includes 2nd Generation Intel Core i3 Processors, 2nd Generation Intel Core i5 Processors, and 2nd Generation Intel Core i7 Processors. The 2nd Generation Intel Core i5 Processors and 2nd Generation Intel Core i7 Processors have been launched and the 2nd Generation Intel Core i3 Processors are scheduled to launch on 20Feb11. Prices for the 2nd Generation Intel Core i3 Processors have not been announced. How these developments affect the Intel Desktop Computer 1 eMachine is as follows.

The Intel Desktop Computer 4 Performance is meant to be a mid level gaming machine running 2 x PCIe 2.x x16 (dual at x16/x16). The only Intel socket LGA1155 motherboard currently from ASUS, GIGABYTE, Intel, or MSI offering 2 x PCIe 2.x x16 (dual at x16/x16) is the GIGABYTE GA-P67A-UD7 $320, which is excessive.

Therefore, the Intel Desktop Computer 4 Performance is not likely to be affected by the launch of the Intel Series 6 Chipset family and 2nd Generation Intel Core Processor family.

Intel Desktop Computer 4 Performance (Model: IDC4-PER)			
Comp	**Spec**	**Note**	**Retail**
Mother-board	ASUS SABERTOOTH X58 (usa.asus.com): • Intel X58 Express Chipset (intel.com) / LGA1366 / ATX. • 1 x 24 pin motherboard main / 1 x 8 pin EPS 12V CPU. • Triple channel memory / 6 DIMMs / < 1.65V / DDR3-1066/1333/1600/1800/1866 SDRAM / 24GB max. Supports Intel Extreme Memory Profile (XMP). • No Intel HD Graphics support. Add-in GPU required. • 2 x PCIe 2.0 x16 / 1 x PCIe x16 (x4 mode) / 2 x PCIe x1 / 1 x PCI. Supports dual GPU ATI CrossFireX/NVIDIA SLI at x16/x16. • 2 x internal SATA 6.0Gb/s / 6 x internal SATA 3.0Gb/s / 2 x eSATA 3.0Gb/s back. RAID. • 2 x USB 3.0 back / 12 x USB 2.0 (6 x back + 6 internal header). Audio header. • 1 x gigabit (10/100/1000Mb/s) ethernet.	• ATX. • SATA 6.0Gb/s. USB 3.0. • Second place: ASUS P6X58D-E (usa.asus.com) $240.	$210
Processor	Intel Core i7-950 Processor (ark.intel.com): • 8MB Cache / 3.06GHz / 4.80GT/s / LGA1366 / 45nm / Bloomfield. • Quad core with Intel Hyper-Threading Technology (4C/8T). • Triple channel memory / DDR3-800/1066 SDRAM / 25.6GB/s max bandwidth. • Intel 64 / Intel VT-x / Intel Turbo Boost / No Intel HD Graphics / QPI.		$300
Memory	Kingston KVR1066D3N7K3/12G (shop.kingston.com): • 12GB DDR3-1066 SDRAM / 1.5V / Non-ECC / CL7 / Kit 3 x 4GB.	• 1066MT/s x 8B/T x 3 channels = 25.6GB/s, which equals the Intel Core i7-950 Processor max memory bandwidth.	$180
GPU	Sapphire ATI Radeon HD 5770 (Model: 100283-3L): • 1GB DDR5 / 128-bit / 850MHz core / 4800MHz memory effective. • 1 x PCIe 2.1 x16 / DX11 / SM5.0. • 1 x DisplayPort / 1 x HDMI / 2 x Dual link DVI. • ATI CrossFireX. ATI Eyefinity.	• Occupies one motherboard expansion slot and two case expansion slots. • 1 x 6 pin PCIe power connector required. 500W+ power supply required. • Tom's Hardware Best Graphics Cards For The Money: December 2010 (tomshardware.com).	$175
Hard Drive	Western Digital WD1002FAEX (wdc.com): • Caviar Black / 1.0TB / SATA 6.0Gb/s / 64MB Cache / 7200rpm.	• SATA 6.0Gb/s. • Caviar Black.	$100
CD/DVD Burner	2 x ASUS DRW-24B1ST: • SATA. 2MB Cache. • 24X DVD+R/8X DVD+RW/12X DVD+R DL/24X DVD-R/6X DVD-RW/12X DVD-RAM/16X DVD-ROM/48X CD-R/32X CD-RW/48X CD-ROM.	• 4x Newegg Customer Choice Award Winner - CD/DVD Burners.	$50
Case	Lian Li PC-9F (lian-li.com): • 473 x 210 x 498 (H x W x D) (mm). • 3 x external 5.25" (one with 5.25" to 3.5" adapter) / 6 x internal 3.5". • 8 x expansion. • I/O panel: Top front / 2 x USB 3.0 / 1 x eSATA / Audio. • Fans included: Front 2 x 120mm / Back 1 x 120mm.	• Supports microATX and ATX motherboards. • Removable hard drive cage. • 6kg. • Alternative: If basic regular size mid tower is good enough Antec One Hundred (antec.com) $60.	$140
Power Supply	Thermaltake Toughpower 575W (TPX-575M) (thermaltakeusa.com): • ATX 12V v2.3 / EPS 12V v2.91. • 80 PLUS Bronze Certified / Active PFC / 5 year warranty.	• Second place: Or if 6 x SATA and 3 year warranty are good enough Antec High Current Gamer 620W (HCG-620) (antec.com) $100.	$110

	• 1 x 24 pin motherboard main / 1 x 4+4 pin ATX/EPS 12V CPU / 1 x 8 pin EPS 12V CPU / 1 x 6+2 pin PCIe / 1 x 6 pin PCIe / 8 x SATA / 6 x molex / 1 x floppy.		
Intel Desktop Computer 4 Performance (Model: IDC4-PER)			$1265

6. Additional Reading

- Intel Technologies Demonstrated (intel.com).
- Intel Graphics Technology (intel.com).
- Intel HD Graphics (intel.com).
- Quick Reference Guide To Intel HD Graphics (software.intel.com).
- Intel Chipsets (intel.com).
- Intel Desktop Chipsets (intel.com).
- Intel 5 Series Chipset (intel.com).
- Intel H55 Express Chipset (intel.com).
- Intel H57 Express Chipset (intel.com).
- Intel Q57 Express Chipset (intel.com).
- Intel P55 Express Chipset (intel.com).
- Intel X58 Express Chipset (intel.com).
- Intel 6 Series Chipset (intel.com).
- Intel H67 Express Chipset (intel.com).
- Intel P67 Express Chipset (intel.com).
- Intel Processors (intel.com).
- Intel Desktop Processors (intel.com).
- Intel Pentium Processor (intel.com).
- Intel Pentium Processor G6950 (ark.intel.com).
- Intel Core i3 Processor (intel.com).
- Intel Core i5 Processor (intel.com).
- Intel Core i7 Processor (intel.com).
- Intel Core i7 Processor Extreme Edition (intel.com).
- Intel Motherboards (intel.com).
- Intel Desktop Boards (intel.com).
- ASUS Motherboards (usa.asus.com).
- Gigabyte Motherboards (gigabyte.com).
- MSI Motherboards (us.msi.com).
- Kingston (kingston.com).
- Tom's Hardware Best Graphics Cards For The Money: December 2010 (tomshardware.com).
- ATI Radeon and ATI FirePro Graphics Cards from AMD (amd.com).
- Sapphire (sapphiretech.com).
- Sapphire: Radeon Specifications Matrix (sapphiretech.com) (.xls).
- Western Digital: Desktop Hard Drives: WD Caviar Blue (wdc.com).
- Western Digital: Desktop Hard Drives: WD Caviar Black (wdc.com).
- Newegg (newegg.com).
- Antec (antec.com).
- Cooler Master (coolermaster.com).
- Lian Li (lian-li.com).
- Thermaltake (thermaltakeusa.com).