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Intel Desktop Computer Builds Based On User Needs: June 2010

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1. [Introduction](#)

2. [Intel Desktop Casual/Budget User - Model IDCB0610](#)

2.1. [Intel Desktop Casual/Budget User - Model IDCB0610: Intended For](#)

2.2. [Intel Desktop Casual/Budget User - Model IDCB0610](#)

2.3. [Intel Desktop Casual/Budget User - Model IDCB0610: Possible Upgrades](#)

3. [Intel Desktop Intermediate User/Budget - Model IDIB0610](#)

3.1. [Intel Desktop Intermediate User/Budget - Model IDIB0610: Intended For](#)

3.2. [Intel Desktop Intermediate User/Budget - Model IDIB0610](#)

3.3. [Intel Desktop Intermediate User/Budget - Model IDIB0610: Possible Upgrades](#)

4. [Intel Desktop Intermediate User/Performance - Model IDIP0610](#)

4.1. [Intel Desktop Intermediate User/Performance - Model IDIP0610: Intended For](#)

4.2. [Intel Desktop Intermediate User/Performance - Model IDIP0610](#)

4.3. [Intel Desktop Intermediate User/Performance - Model IDIP0610: Possible Upgrades](#)

5. [Intel Desktop Power User/Budget - Model IDPB0610](#)

5.1. [Intel Desktop Power User/Budget - Model IDPB0610: Intended For](#)

5.2. [Intel Desktop Power User/Budget - Model IDPB0610](#)

5.3. [Intel Desktop Power User/Budget - Model IDPB0610: Possible Upgrades](#)

6. [Intel Desktop Power User/Performance - Model IDPP0610](#)

6.1. [Intel Desktop Power User/Performance - Model IDPP0610: Intended For](#)

6.2. [Intel Desktop Power User/Performance - Model IDPP0610](#)

6.3. [Intel Desktop Power User/Performance - Model IDPP0610: Possible Upgrades](#)

7. [Additional Reading](#)

1. Introduction

The motherboard chipset defines the capabilities of a computer. Specifically, the motherboard chipset defines; 1.) the central processing unit (CPU), system memory (RAM), graphics processing unit (GPU), drives, expansion cards, and peripheral devices (e.i., keyboard, mouse, and printer) that can be installed on a computer, and 2.) the devices (e.i., network connection and audio) and technologies (e.i., RAID and virtualization) that are integrated into the motherboard, itself. Therefore, when building a computer, the most important component to choose wisely is the motherboard chipset, or chipset for short.

PC-compatible chipsets are divided into two types: 1.) Intel chipsets, which support Intel CPUs, and 2.) AMD chipsets, which support AMD CPUs. In 2007, Intel chipset manufacturers included Intel, NVIDIA, AMD/ATI, VIA, and SiS. As of June 2010, Intel has a virtual monopoly on the Intel chipset market.

A motherboard is simply an implementation of a chipset. Motherboard manufacturers incorporating Intel chipsets into their motherboards include ASUS (asus.com), GIGABYTE (giga-byte.com), Intel (intel.com), and MSI (msi.com.tw).

Computers can be divided into two types: 1.) Intel computers, which have an Intel chipset/CPU, and 2.) AMD computers, which have an AMD chipset/CPU. This page describes Intel desktop computer builds based on user needs.

2. Intel Desktop Casual/Budget User - Model IDCB0610

2.1. Intel Desktop Casual/Budget User - Model IDCB0610: Intended For

- Users who rarely run multiple system resource intensive applications simultaneously. This includes users interested in accessing the Internet, using Microsoft Office, and, for example, viewing multimedia content.
- Users on a budget. This includes Windows 2000 users needing a new computer that can run Windows XP/Vista/7 with some of their existing hardware.

2.2. Intel Desktop Casual/Budget User - Model IDCB0610

Component	Make/Model/Specs	Notes	Retail
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Motherboard	Intel DH55PJ: <ul style="list-style-type: none"> Intel H55 Express chipset. microATX / LGA1156. Dual channel two slots 1333 / 1066MHz DDR3 8GB max. Integrated graphics DVI-D / VGA out. 1 x PCIe 2.0 x16 graphics slot. 2 x PCIe 2.0 x1 / 1 x PCI. 12 x USB 2.0 (6B + 6I). 4 x internal SATA 3.0Gbps. Integrated Intel Pro 10 / 100 / 1000 Network Connection. 	<ul style="list-style-type: none"> microATX. Legacy device support: VGA monitor, parallel port printer, 1 x PS2 for keyboard or mouse. Need to check other motherboard manufacturer's for Intel H55 Express chipset-based motherboards. 	\$100
CPU	Intel Pentium Processor G6950: <ul style="list-style-type: none"> 3MB Cache / 2.8GHz / 2.5GTps / LGA1156 / 32nm. Dual core (2C / 2T). Intel Virtualization Technology (VT-x). Integrated Memory Controller (IMC). Integrated Intel HD Graphics. 	<ul style="list-style-type: none"> No Intel Hyper-Threading Technology. 	\$100
RAM	Kingston KVR1333D3N9K2/2G: <ul style="list-style-type: none"> 2GB 1333MHz DDR3 / Non-ECC / CL9 / Kit 2 x 1GB. 		\$65
GPU	Integrated Intel HD Graphics: <ul style="list-style-type: none"> DVI-D / VGA out. 		\$0
Hard Drive	Western Digital WD3200AAKS: <ul style="list-style-type: none"> Caviar Blue / 320GB / SATA / 3Gbps / 16MB Cache / 7200 RPM. 		\$50
CD/DVD Drive	ASUS DRW-24B1ST: <ul style="list-style-type: none"> 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/2MB Cache/SATA. 	<ul style="list-style-type: none"> Newegg 3x Winner of Customer Choice Award - CD/DVD Burners. 	\$35
Case/Power Supply	Antec Antec NSK 4480 II / Antec NSK 4480B II: case with EarthWatts EA-380 power supply: <ul style="list-style-type: none"> 16.6" x 7.8 x 16.5 / 422mm x 198 x 419 (H x W x D). 3 x external 5.25" / 2 x external 3.5" / 3 x internal 3.5". 7 x expansion. Front 2 x USB and Audio. Rear 1 x 120mm Tri-Cool fan. 380W power supply. ATX12V v2.2 compliant. 80 PLUS certified. 18 lbs / 8 kg. 	<ul style="list-style-type: none"> Smaller than mid tower. 	\$110
			\$460

2.3. Intel Desktop Casual/Budget User - Model IDCB0610: Possible Upgrades

- The Intel DH55PJ motherboard supports LGA1156 socket CPUs. Therefore, can upgrade from Intel Pentium Processor G6950 to an Intel Core i3 Processor, Intel Core i5 Processor, or early Intel Core i7 Processor.
- The Intel DH55PJ motherboard supports 8GB RAM. Therefore, can upgrade from 2GB to 8GB RAM. The Intel DH55PJ motherboard has two RAM slots, both of which are occupied in the described build as required for dual channel mode.
- The Intel DH55PJ motherboard supports an add-in PCIe 2.0 x16 graphics card. Therefore, can upgrade from integrated Intel HD Graphics to an add-in PCIe 2.0 x16 graphics card.

3. Intel Desktop Intermediate User/Budget - Model IDIB0610

3.1. Intel Desktop Intermediate User/Budget - Model IDIB0610: Intended For

- Users on a budget who occasionally run multiple system resource intensive applications simultaneously. This includes users interested in accessing the Internet, using Microsoft Office, viewing multimedia content, and, for example, occasionally editing multimedia content or playing games that are 2-3+ years old.

3.2. Intel Desktop Intermediate User/Budget - Model IDIB0610

Component	Make/Model/Specs	Notes	Retail
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Motherboard	Intel DH57DD: <ul style="list-style-type: none"> • Intel H57 Express chipset. • microATX / LGA1156. • Dual channel four slots 1333 / 1066MHz DDR3 16GB max. • Integrated graphics HDMI/DVI-I out. • 1 x PCIe 2.0 x16 graphics slot. • 2 x PCIe 2.0 x1 / 1 x PCI. • 14 x USB 2.0 (6B + 8I). • 5 x internal SATA 3.0Gbps / 1 x eSATA back. RAID. • Integrated Intel Pro 10 / 100 / 1000 Network Connection. 	<ul style="list-style-type: none"> • microATX. • Need to check other motherboard manufacturer's for Intel H57 Express chipset-based motherboards. 	\$130
CPU	Intel Core i3-530 Processor: <ul style="list-style-type: none"> • 4MB Cache / 2.93GHz / 2.5GTps / LGA1156 / 32nm. • Dual core with Intel Hyper-Threading Technology (2C / 4T). • Intel Virtualization Technology (VT-x). • Integrated Memory Controller (IMC). • Integrated Intel HD Graphics. 		\$130
RAM	Kingston KVR1333D3N9K2/4G: <ul style="list-style-type: none"> • 4GB 1333MHz DDR3 / Non-ECC / CL9 / Kit 2 x 2GB. 		\$120
GPU	Integrated Intel HD Graphics: <ul style="list-style-type: none"> • HDMI / DVI-I out. 		\$0
Hard Drive	Western Digital WD5000AAKS: <ul style="list-style-type: none"> • Caviar Blue / 500GB / SATA / 3Gbps / 16MB Cache / 7200 RPM. 		\$60
CD/DVD Drive	ASUS DRW-24B1ST: <ul style="list-style-type: none"> • 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/2MB Cache/SATA. 	<ul style="list-style-type: none"> • Newegg 3x Winner of Customer Choice Award - CD/DVD Burners. 	\$35
Case/Power Supply	Antec Antec NSK 4480 II / Antec NSK 4480B II: case with EarthWatts EA-380 power supply: <ul style="list-style-type: none"> • 16.6" x 7.8 x 16.5 / 420mm x 200 x 420 (H x W x D). • 3 x external 5.25" / 2 x external 3.5" / 3 x internal 3.5". • 7 x expansion. • Front 2 x USB and Audio. • Rear 1 x 120mm Tri-Cool fan. • 380W power supply. • ATX12V v2.2 compliant. 80 PLUS certified. 18 lbs / 8 kg. 	<ul style="list-style-type: none"> • Smaller than mid tower. 	\$110
			\$585

3.3. Intel Desktop Intermediate User/Budget - Model IDIB0610: Possible Upgrades

- The Intel DH57DD motherboard supports LGA1156 socket CPUs. Therefore, can upgrade from Intel Core i3-530 Processor to a faster Intel Core i3 Processor, an Intel Core i5 Processor, or an early Intel Core i7 Processor.
- The Intel DH57DD motherboard supports 16GB RAM. Therefore, can upgrade from 4GB to 16GB RAM. The Intel DH57DD motherboard has four RAM slots, two of which are occupied in the described build as required for dual channel mode.
- The Intel DH57DD motherboard supports an add-in PCIe 2.0 x16 graphics card. Therefore, can upgrade from integrated Intel HD Graphics to an add-in PCIe 2.0 x16 graphics card.

4. Intel Desktop Intermediate User/Performance - Model IDIP0610

4.1. Intel Desktop Intermediate User/Performance - Model IDIP0610: Intended For

- Users who occasionally run multiple system resource intensive applications simultaneously. This includes users interested in accessing the Internet, using Microsoft Office, viewing multimedia content, and, for example, occasionally editing multimedia content or playing games that are 1-2+ years old.

4.2. Intel Desktop Intermediate User/Performance - Model IDIP0610

Component	Make/Model/Specs	Notes	Retail
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Motherboard	<p>Intel DP55WG:</p> <ul style="list-style-type: none"> • Intel P55 Express chipset. • ATX / LGA1156. • Dual channel four slots 1600 / 1333 / 1066MHz DDR3 16GB max. • 1 x PCIe 2.0 x16 graphics slot. • 1 x PCIe 2.0 x8 / 1 x PCIe 2.0 x4 / 2 x PCIe 2.0 x1 / 2 x PCI. • 14 x USB 2.0 (8B + 6I). • 6 x internal SATA 3.0Gbps. RAID. • Integrated Intel Pro 10 / 100 / 1000 Network Connection. 	<ul style="list-style-type: none"> • ATX. • Need to check other motherboard manufacturer's for Intel P55 Express chipset-based motherboards. 	\$150
CPU	<p>Intel Core i5-650 Processor:</p> <ul style="list-style-type: none"> • 4MB Cache / 3.20GHz / 2.5GTps / LGA1156 / 32nm. • Dual core with Intel Hyper-Threading Technology (2C / 4T). • Intel Virtualization Technology (VT-x). • Integrated Memory Controller (IMC). • Intel Turbo Boost. 	<ul style="list-style-type: none"> • No Integrated Intel HD Graphics. 	\$195
RAM	<p>Kingston KVR1333D3N9K2/4G:</p> <ul style="list-style-type: none"> • 4GB 1333MHz DDR3 / Non-ECC / CL9 / Kit 2 x 2GB. 	<ul style="list-style-type: none"> • The Intel DP55WG board supports 1600 / 1333 / 1066MHz DDR3 XPM memory. Selected 1333MHz DDR3 because 1333Mcycles/s x 8Bytes/cycle x 2 channels = 21.3GBps, which matches the i5-650 Processor's published max memory bandwidth. 	\$120
GPU	<p>Sapphire ATI Radeon HD 4650 100254HDMI:</p> <ul style="list-style-type: none"> • 1GB DDR2 / 128-bit / 600MHz core / 800MHz memory effective. • PCIe 2.1 x16 / DX10.1 / SM4.1. • 1 x HDMI / 1 x Dual link DVI / 1 x VGA out. 	<ul style="list-style-type: none"> • No external power connection required. • Tom's Hardware Best Graphics Cards For The Money: June 2010. 	\$80
Hard Drive	<p>Western Digital WD10EALS:</p> <ul style="list-style-type: none"> • Caviar Black / 1TB / SATA / 3Gbps / 32MB Cache / 7200 RPM. 	<ul style="list-style-type: none"> • Caviar Black. 	\$100
CD/DVD Drive	<p>ASUS DRW-24B1ST:</p> <ul style="list-style-type: none"> • 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/2MB Cache/SATA. 	<ul style="list-style-type: none"> • Newegg 3x Winner of Customer Choice Award - CD/DVD Burners. 	\$35
Case/Power Supply	<p>Antec NSK 6580 / Antec NSK 6580B: case with EarthWatts EA-430 power supply:</p> <ul style="list-style-type: none"> • 18.3" x 8.25 x 18.6 / 465mm x 210 x 472 (H x W x D). • 4 x external 5.25" (one with 5.25" to 3.5" adapter) / 5 x internal 3.5". • Front 2 x USB and Audio. • Rear 1 x 120mm Tri-Cool fan. • 430W power supply. • ATX12V v2.2 compliant. 80 PLUS certified. 25.5 lbs / 11.57 kg. 	<ul style="list-style-type: none"> • Mid tower. 	\$140
			\$820

4.3. Intel Desktop Intermediate User/Performance - Model IDIP0610: Possible Upgrades

- The Intel DP55WG motherboard supports LGA1156 socket CPUs. Therefore, can upgrade from Intel Core i5-650 Processor to a faster Intel Core i5 Processor or an early Intel Core i7 Processor.
- The Intel DP55WG motherboard supports 16GB RAM. Therefore, can upgrade from 4GB to 16GB RAM. The Intel DP55WG motherboard has four RAM slots, two of which are occupied in the described build as required for dual channel mode.
- Can upgrade the add-in PCIe 2.0 x16 graphics card.

5. Intel Desktop Power User/Budget - Model IDPB0610

5.1. Intel Desktop Power User/Budget - Model IDPB0610: Intended For

- Users who frequently run multiple system resource intensive applications simultaneously. This includes users interested in accessing the Internet, using Microsoft Office, viewing multimedia content, and, for example, frequently editing multimedia content or playing recently released games.

5.2. Intel Desktop Power User/Budget - Model IDPB0610

Component	Make/Model/Specs	Notes	Retail
Motherboard	Intel DX58SO: <ul style="list-style-type: none"> • Intel X58 Express chipset. • ATX / LGA1366. • Triple channel four slots 1600 / 1333 / 1066MHz DDR3 16GB max. • 2 x PCIe 2.0 x16 graphics slots. • 1 x PCIe 2.0 x4 / 2 x PCIe 2.0 x1 / 1 x PCI. • 12 x USB 2.0 (8B + 4I). • 6 x internal SATA 3.0Gbps / 2 x eSATA back. RAID. • Integrated Intel Pro 10 / 100 / 1000 Network Connection. 	<ul style="list-style-type: none"> • ATX. • Dual PCIe 2.0 x16 slots. • Currently only Intel board that supports Intel socket LGA1366 processors. • Need to check other motherboard manufacturer's for Intel X58 Express chipset-based motherboards. 	\$240
CPU	Intel Core i7-930 Processor: <ul style="list-style-type: none"> • 8MB Cache / 2.80GHz / 4.80GTps / LGA1366 / 45nm. • Quad core with Intel Hyper-Threading Technology (4C/8T). • Intel Virtualization Technology (VT-x). • Integrated Memory Controller (IMC). • Intel Turbo Boost. • Intel QuickPath Interconnect (QPI). 	<ul style="list-style-type: none"> • No Integrated Intel HD Graphics. • Max Thermal Design Power (TDP) = 130W. 	\$310
RAM	Kingston KVR1066D3N7K3/6G: <ul style="list-style-type: none"> • 6GB 1066MHz DDR3 / Non-ECC / CL7 / Kit 3 x 2GB. 	<ul style="list-style-type: none"> • The Intel DX58SO board supports 1600 / 1333 / 1066MHz DDR3 memory. Selected 1066MHz DDR3 because 1066Mcycles/s x 8Bytes/cycle x 3 channels = 25.6GBps, which matches the Core i7-930 Processor's published max memory bandwidth. 	\$180
GPU	Sapphire ATI Radeon HD 5750 100284L: <ul style="list-style-type: none"> • 1GB DDR5 / 128-bit / 700MHz core / 4600MHz memory effective. • PCIe 2.1 x16 / DX11 / SM5.0. • 1 x DisplayPort / 1 x HDMI / 2 x Dual link DVI out. DVI-to-VGA adapter included. • ATI Eyefinity. 	<ul style="list-style-type: none"> • 1 x 75W 6-pin PCIe power connection required. Max power 86W. • Occupies 2 expansion slots. • Tom's Hardware Best Graphics Cards For The Money: June 2010. 	\$150
Hard Drive	Western Digital WD10EALS: <ul style="list-style-type: none"> • Caviar Black / 1TB / SATA / 3Gbps / 32MB Cache / 7200 RPM. 	<ul style="list-style-type: none"> • Caviar Black. 	\$100
CD/DVD Drive	2 x ASUS DRW-24B1ST: <ul style="list-style-type: none"> • 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/2MB Cache/SATA. 	<ul style="list-style-type: none"> • Dual CD/DVD drives. • Newegg 3x Winner of Customer Choice Award - CD/DVD Burners. 	\$70
Case/Power Supply	Antec Titan 650: case with TruePower Trio TP3-650 power supply: <ul style="list-style-type: none"> • 17.6" x 8.1 x 23 / 446mm x 205 x 584 (H x W x D). • 4 x external 5.25" (one with 5.25" to 3.5" adapter) / 6 x internal 3.5". • 7 x expansion. • Front access to internal 3.5" bays. • Front 2 x USB and Audio. • Rear 1 x 120mm Tri-Cool fan. • 650W power supply. • ATX12V v2.2 compliant. 30 lbs / 13.6 kg. 	<ul style="list-style-type: none"> • Antec Server Series. • Spacious with front access to internal 3.5" bays for those who like to tinker. 	\$250
			\$1300

5.3. Intel Desktop Power User/Budget - Model IDPB0610: Possible Upgrades

- The Intel DX58SO motherboard supports LGS1366 socket CPUs. Therefore, can upgrade from Intel Core i7-930 Processor to

- a faster Intel Core i7 Processor or an Intel Core i7 Extreme Processor.
- The Intel DX58SO motherboard supports 16GB RAM. Therefore, can upgrade from 6GB to 16GB RAM. The Intel DX58SO motherboard has four RAM slots, three of which are occupied in the described build as required for triple channel mode.
- Can upgrade the add-in PCIe 2.0 x16 graphics card.

6. Intel Desktop Power User/Performance - Model IDPP0610

6.1. Intel Desktop Power User/Performance - Model IDPP0610: Intended For

- Users with time constraints and/or disposable money who frequently run multiple system resource intensive applications simultaneously. This includes home/office users who use the Internet, Microsoft Office, and, for example, frequently edit multimedia files or play recently released games.

6.2. Intel Desktop Power User/Performance - Model IDPP0610

Component	Make/Model/Specs	Notes	Retail
All	Simply get the best of everything and max everything out.	Paying double for 5-10% performance gain does not make sense unless your time is indispensable and/or your money is disposable.	2500+

6.3. Intel Desktop Power User/Performance - Model IDPP0610: Possible Upgrades

- Check Intel for the latest Chipsets and CPUs, and AMD and NVIDIA for the latest GPUs, and upgrade your motherboard, CPU, GPU, and max out RAM as required to maintain maximum performance.

7. Additional Reading

- [Intel Technologies Demonstrated \(intel.com\)](http://intel.com).
- [Intel Graphics Technology \(intel.com\)](http://intel.com).
- [Intel Chipsets \(intel.com\)](http://intel.com).
- [Intel Desktop Chipsets \(intel.com\)](http://intel.com).
- [Intel Processors \(intel.com\)](http://intel.com).
- [Intel Desktop Processors \(intel.com\)](http://intel.com).
- [Intel Motherboards \(intel.com\)](http://intel.com).
- [Intel Desktop Boards \(intel.com\)](http://intel.com).
- [Intel Desktop Board DH55PJ Technical Product Specification \(downloadmirror.intel.com\) \(.pdf\)](http://downloadmirror.intel.com).
- [Intel Desktop Board DH57DD Technical Product Specification \(downloadmirror.intel.com\) \(.pdf\)](http://downloadmirror.intel.com).
- [Intel Desktop Board DP55WG Technical Product Specification \(downloadmirror.intel.com\) \(.pdf\)](http://downloadmirror.intel.com).
- [Intel Desktop Board DX58SO Technical Product Specification \(downloadmirror.intel.com\) \(.pdf\)](http://downloadmirror.intel.com).
- [ATI Radeon And ATI FirePro Graphics Cards From AMD \(amd.com\)](http://amd.com).
- [Sapphire Graphics Cards \(sapphiretech.com\)](http://sapphiretech.com).
- [Tom's Hardware Best Graphics Cards For The Money: June 2010 \(tomshardware.com\)](http://tomshardware.com).
- [Kingston \(kingston.com\)](http://kingston.com).
- [Western Digital Desktop Drives Overview \(wdc.com\)](http://wdc.com).
- [Antec Enclosures \(antec.com\)](http://antec.com).
- [Antec Power Supplies \(antec.com\)](http://antec.com).

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