

Product Information Sheet I C2000 and DSS High-Performance PCs & Storage Systems

FEATURES

- Maximum Performance for Signatec Products with High-End PC Base Components and Customizable Options
- Multiple Independent PCI Peer Buses for Efficient High-Speed Transfer Rates for Signatec Boards
- Support for Signatec's Data Storage Systems (DSS) for Real-Time Data Recording Applications with Sustained Rates up to 2.8 GB/s and Storage Capacity up to 96 TB
- Turnkey System Solution Ready for Use Right Out of the Box with all Signatec Products and Software Installed

OVERVIEW

The IC2000 is a high-performance PC based workstation designed specifically for integrating Signatec's advanced products and maximizing their operational performance. These systems incorporate the latest in PC-based technology and utilize motherboards with multiple PCI, PCI-X and PCI Express bus interface options. The multiple peer design of the PCI buses ensure that the maximum transfer rate is achieved for multiple Signatec board operations by reducing the number of devices competing for a bus's shared bandwidth.

IC2000 systems also feature drive bay enclosures that provide the option to include Signatec's Data Storage System that has been specifically tailored for real-time data recording applications that require a guaranteed continuous transfer rate with no missing data. Data transfer rates and storage capacity are scalable, with sustained transfer rates up to 2.8 GB/s and storage capacity up to 96 TB.

IC2000 and DSS systems come with all Signatec boards, features, and software fully tested and installed so that the user can be up and running with their Signatec system solution right out of the box. Signatec can also provide custom configurations to meet specific customer applications or requirements. The ability to integrate Signatec's high-performance data acquisition, digital signal processing, signal generation, and data recording products all within a single unit provides the user with a complete and powerful turnkey system solution at the lowest possible price.



IC2000 I/O INTERFACES

I/O Slot Type Interfaces

All IC2000 systems utilize motherboards or passive backplanes designed to maximize I/O throughput through the use of multiple PCI, PCI-X and PCI Express bus interface options. The multiple peer design of the PCI buses ensure that the maximum transfer rate is achieved for multiple Signatec board operations by reducing the number of devices competing for a bus's shared bandwidth. Careful attention should be noted when selecting the proper motherboard or passive backplane option in regards to the types and availability of I/O slots for conventional PCI, PCI-X, and PCI Express boards.

Conventional PCI 32-bit Interface

The conventional PCI interface slot supports 32-bit 33MHz operation for add-in boards. Conventional PCI slots on motherboards are now implemented with either PCI Revision 2.2 or the current PCI Revision 3.0 (replaces PCI Revision 2.3). The primary difference is that PCI Revision 2.2 supports both the 5V and 3.3V keyed system board connectors with both 3.3V and 5V operation while PCI Revision 3.0 supports only 3.3V keyed system board connectors with only 3.3V operation.



Add-in boards that are keyed for 5V only operation can only be installed in a conventional PCI Revision 2.2 slot. Add-in boards that are keyed for 3.3V operation can be installed in both a Revision 2.2 and Revision 3.0 slot.

Universal Cards are boards that have two keys, which provide a means for vendors to design one board that supports both 3.3V and 5V slots. Revision 3.0 of the PCI specification removes support for 5V-only adapter slots. However, both the Universal Cards and 3.3V Cards continue to be supported by the Conventional PCI 3.0 specification. In addition, Universal Cards can also be installed in higher PCI-X 64-bit interface slots although they will still operate at the 32-bit 33MHz rate.



Universal Card Interface Keyed for both 5V and 3.3V Slots and Operation

PCI-X 64-bit Interface



is a higher speed version of the conventional PCI standard that supports signaling speeds up to 533 MHz at 64-bits. PCI-X 2.0 is built upon the same architecture, protocols, signals, and connector as traditional PCI. Currently, the majority of motherboards and passive backplanes today only support up to PCI-X 133MHz slots. Some motherboards and passive backplanes will also have PCI-X slots rated at 100MHz, but the 100MHz option is only available to 133MHz rated PCI-X cards plugged into slots limited to 100MHz by design constraints.

PCI-X slots within a PCI-X segment will automatically throttle down to the lowest speed of the slowest board's interface. For example, if a PCI-X segment consisting of 4 PCI-X slots are populated with 4 boards: 1 board with a PCI Universal 33MHz interface and 3 boards with a PCI-X 133MHz interface, then all four boards will run at 33MHz. Therefore, it is important to note each board's interface type and speed and the number of PCI-X segments available in order to position boards that will result in the maximum throughput transfer rates possible.

PCI Express Interface

PCI Express (PCIe) is a serial connection that operates more like a network than a bus. Instead of one bus that handles data from multiple sources, PCIe has a switch that controls several point-to-point serial connections. Every device has its own dedicated connection, so devices no longer share bandwidth like they do on a shared conventional PCI or PCI-X bus.



Each lane of a PCIe connection contains two pairs of wires, one to send and one to receive. Packets of data move across the lane at a rate of one bit per cycle. A x1 connection, the smallest PCIe connection, has one lane made up of four wires. It carries one bit per cycle in each direction. A x4 link transmits four bits, and so on. PCIe boards with smaller interfaces (x1 or x4) are compatible with larger PCI Express slots (x8 or x16), but not vice-versa:



The new PCI Express 2.0 specification offers twice the bandwidth of the previous PCI Express 1.0 specification by doubling the throughput per lane from 250 MB/s to 500 MB/s. Therefore a PCI Express 2.0 x8 slot has the same bandwidth as a PCI Express 1.0 x16 slot.

IC2000 I/O INTERFACES (Continued)

I/O Interface Transfer Rates

The following table details the maximum transfer of each I/O interface slot type. Note that the maximum transfer rate listed for conventional PCI and PCI-X interfaces are for an individual "dedicated" slot. Multiple PCI and PCI-X interface slots that are on a "shared" segment bus must share the available bandwidth between all boards in the segment, and thus the effective transfer rate decreases with each board added to the shared bus. This is not the case for PCI Express slots, since they are dedicated serial slots by design.

I/O Interface Type	Maximum Transfer Rate
PCI 32-bit 33 MHz	133 MB/s
PCI 32-bit 66 MHz	266 MB/s
PCI 64-bit 33 MHz	266 MB/s
PCI 64-bit 66 MHz	533 MB/s
PCI-X 64-bit 66 MHz	533 MB/s
PCI-X 64-bit 100 MHz	800 MB/s
PCI-X 64-bit 133 MHz	1,066 MB/s
PCI Express 1.0 x1	250 MB/s (500 MB/s Duplex)
PCI Express 1.0 x4	1 GB/s (2 GB/s Duplex)
PCI Express 1.0 x8	2 GB/s (4 GB/s Duplex)
PCI Express 1.0 x16	4 GB/s (8 GB/s Duplex)
PCI Express 2.0 x1	500 MB/s (1 GB/s Duplex)
PCI Express 2.0 x4	2 GB/s (4 GB/s Duplex)
PCI Express 2.0 x8	4 GB/s (8 GB/s Duplex)
PCI Express 2.0 x16	8 GB/s (16 GB/s Duplex)

Careful attention should be noted when selecting the proper motherboard or passive backplane option type in regards to the planned installation of PCI, PCI-X, and PCI Express boards in order to achieve maximum performance for the system. In general, it is best to take note of the following:

- Number and type of I/O slots available
- Number of "dedicated" vs. "shared" I/O slots

Be sure to select a motherboard or passive backplane option that has the proper number and type of I/O slots available to meet the planned number of boards with their specific interface types that are to be integrated into the system.

Take note of I/O slots that are "dedicated" vs. "shared". Boards that are installed into "shared" slots will auto default their transfer rate to the slowest board rate. When operated simultaneously, the maximum transfer rate of boards that are installed in shared slots will decrease as each board must share the available bandwidth.

Signatec Product I/O Interfaces

The following table details the maximum I/O interfaces for Signatec's products and which type of I/O slots they are compatible with for system installation.

Signatec Product	Maximum I/O Interface	Compatible I/O Interface Types
PDA1000	PCI	PCI 32-bit 33/66MHz
	64-bit 66MHz	PCI 64-bit 33/66MHz
		PCI-X 64-bit 66/100/133MHz
PDA12A	PCI	PCI 32-bit (5V) 33/66MHz
	32-bit 33MHz	
PDA14	PCI	PCI 32-bit 33/66MHz
	64-bit 66MHz	PCI 64-bit 33/66MHz
		PCI-X 64-bit 66/100/133MHz
PDA16	PCI-X	PCI 64-bit 33/66MHz
	64-bit 100MHz	PCI-X 64-bit 66/100/133MHz
PMP1000	PCI-X	PCI 64-bit 33/66MHz
	64-bit 100MHz	PCI-X 64-bit 66/100/133MHz
PMP8A	PCI	PCI 32-bit (5V) 33/66MHz
	32-bit 33MHz	
PDAC4000	PCI-X	PCI 64-bit 33/66MHz
	64-bit 100MHz	PCI-X 64-bit 66/100/133MHz
PMEM1000	PCI	PCI 32-bit 33/66MHz
	64-bit 66MHz	PCI 64-bit 33/66MHz
		PCI-X 64-bit 66/100/133MHz
PX14400	PCI Express 1.0	PCI Express 1.0/2.0 x4 (with
	x8	x8 mechanical connector)
		PCI Express 1.0/2.0 x8
		PCI Express 1.0/2.0 x16
PX1500	PCI Express 1.0	PCI Express 1.0/2.0 x4 (with
	x8	x8 mechanical connector)
		PCI Express 1.0/2.0 x8
		PCI Express 1.0/2.0 x16

IC2000 ACTIVE MOTHERBOARD OPTIONS

Standard ATX Active Based Motherboards with Default Installed Components

	A56X1
Form Factor:	Standard ATX (12" x 9.6")
Compatible with Chassis:	TA1, TE1, TE2, TE3, TH1 3A1, 3E2, 3E3, 3E4, 3H1, 3H2 4A1, 4E1, 4E2, 4E3, 4H1, 4H2 5E1, 9E1 ME1
I/O Slots:	Slot 1 = Shared PCI 32-bit 33MHz (3.3V) Slot 2 = Shared PCI 32-bit 33MHz (3.3V) Slot 3 = Dedicated PCI Express 1.0 x4 (x8 Mechanical) Slot 4 = Dedicated PCI Express 2.0 x8 Slot 5 = Dedicated PCI Express 2.0 x4 (x8 Mechanical) Slot 6 = Dedicated PCI Express 2.0 x8 (x16 Mechanical)
Chipset:	Intel 5500 (Tylersburg)
CPU: (See Ordering Information for additional options)	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T 1 – Xeon 6-Core 2.66GHz CPU
	Installed by Default
Memory: (See Ordering Information for	Supports up to maximum 24GB (6 x 4GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM
additional options)	6GB (3 x 2GB FB-DIMMs) Installed by Default
	Note: Each group of RAM banks require CPU installation for memory controller.
Video:	Onboard Integrated Matrox G200eW SVGA with 32 MB RAM
	Note: External video cards supported.
Audio:	No Onboard Audio (Optional USB Audio Sold Separately)
Onboard Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output
Onboard RAID:	Not Applicable
I/O Ports:	 1 – PS/2 Keyboard 1 – PS/2 Mouse 2 – USB 2.0 Rear 2 – USB 2.0 Internal Header 1 – USB 2.0 Onboard 1 – Serial COM Rear 1 – SVGA Video

IC2000 ACTIVE MOTHERBOARD OPTIONS (Continued)

Extended ATX Active Based Motherboards with Default Installed Components

	E56X1	E56X2	E56X3
Form Factor:	Extended ATX (12" x 13")	Extended ATX (12" x 13")	Extended ATX (12" x 13")
Compatible with Chassis:	TE1, TE2, TE3, TH1 3E2, 3E3, 3E4, 3H1, 3H2 4E1, 4E2, 4E3, 4H1, 4H2 5E1, 9E1 ME1	TE1, TE2, TE3, TH1 3E2, 3E3, 3E4, 3H1, 3H2 4E1, 4E2, 4E3, 4H1, 4H2 5E1, 9E1 ME1	TE1, TE2, TE3, TH1 3E2, 3E3, 3E4, 3H1, 3H2 4E1, 4E2, 4E3, 4H1, 4H2 5E1, 9E1 ME1
I/O Slots:	Slot 1 = Shared PCI 32-bit 33MHz (5V) Slot 2 = Dedicated PCI Express 1.0 x4 (x8 mechanical) Slot 3 = Shared PCI 32-bit 33MHz (5V) Slot 4 = Dedicated PCI Express 2.0 x16 Slot 5 = Dedicated PCI Express 2.0 x8 Slot 6 = Dedicated PCI Express 2.0 x8	Slot 1 = Dedicated PCI Express 2.0 x8 Slot 2 = Dedicated PCI Express 2.0 x8 Slot 3 = Dedicated PCI Express 2.0 x8 Slot 4 = Dedicated PCI Express 2.0 x8 Slot 5 = Dedicated PCI Express 2.0 x8 Slot 6 = Dedicated PCI Express 2.0 x8 Slot 7 = Dedicated PCI Express 2.0 x8 Note: All Slots are PCI Express 2.0 x8 Note: All Slots are PCI Express x16 mechanical. Slot #7 supports only short half length boards; select video cards OK; Signatec SYNC1500-6 board only.	Slot 1 = Shared PCI-X 133MHz Slot Slot 2 = Shared PCI-X 133MHz Slot Slot 3 = Dedicated PCI-X 133MHz Slot Slot 4 = Dedicated PCI Express 1.0 x4 (x8 mechanical) Slot 5 = Dedicated PCI Express 2.0 x4 (x8 mechanical) Slot 6 = Dedicated PCI Express 2.0 x16 Slot 7 = Dedicated PCI Express 2.0 x4 (x8 mechanical) - Slot #7 supports only short half length boards; Signatec SYNC1500-6 board only.
Chipset:	Intel 5520 (Tylersburg)	Intel 5520 (Tylersburg)	Intel 5520 (Tylersburg)
CPU: (See Ordering Information for additional	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T
options)	1 – Xeon 6-Core 2.66GHz CPU Installed by Default	1 – Xeon 6-Core 2.66GHz CPU Installed by Default	1 – Xeon 6-Core 2.66GHz CPU Installed by Default
Memory: (See Ordering Information for	Supports up to maximum 96GB (12 x 8GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM	Supports up to maximum 96GB (12 x 8GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM	Supports up to maximum 96GB (12 x 8GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM
additional options)	12GB (6 x 2GB FB-DIMMs) Installed by Default	12GB (6 x 2GB FB-DIMMs) Installed by Default	12GB (6 x 2GB FB-DIMMs) Installed by Default
	Note: Each group of RAM banks require CPU installation for memory controller.	Note: Each group of RAM banks require CPU installation for memory controller.	Note: Each group of RAM banks require CPU installation for memory controller.
Video:	Onboard Integrated Matrox G200eW SVGA with 32 MB RAM	Onboard Integrated Matrox G200eW SVGA with 32 MB RAM	ATI Radeon HD 4650 PCIe 2.0 x16 Video Card with 1GB GDDR2 RAM
	Note: External video cards supported.	Note: External video cards supported.	
Audio:	No Onboard Audio (Optional USB Audio Sold Separately)	No Onboard Audio (Optional USB Audio Sold Separately)	Onboard Realtek ALC888 7.1 HD Audio
Onboard Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE- T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE- T, RJ45 Output
Onboard RAID:	Not Applicable	Not Applicable	Not Applicable
I/O Ports:	1 – PS/2 Keyboard 1 – PS/2 Mouse 2 – USB 2.0 Rear 4 – USB 2.0 Internal Headers 2 – USB 2.0 Onboard 1 – Serial COM Rear 1 – SVGA Video	1 – PS/2 Keyboard 1 – PS/2 Mouse 2 – USB 2.0 Rear 4 – USB 2.0 Internal Headers 2 – USB 2.0 Onboard 1 – Serial COM Rear 1 – SVGA Video	 PS/2 Keyboard PS/2 Mouse USB 2.0 Rear USB 2.0 Internal Headers USB 2.0 Onboard Serial COM Rear

IC2000 ACTIVE MOTHERBOARD OPTIONS (Continued)

Enhanced Extended ATX Active Based Motherboards with Default Installed Components

	H56X1	H56X2
Form Factor:	Enhanced Extended ATX (13.68" x 13")	Enhanced Extended ATX (13.68" x 13")
Compatible with Chassis:	TH1 3H1, 3H2 4H1, 4H2	TH1 3H1, 3H2 4H1, 4H2
I/O Slots:	Slot 1 = Shared PCI-X 64-bit 133MHz Slot 2 = Shared PCI-X 64-bit 133MHz Slot 3 = Dedicated PCI-X 64-bit 133MHz Slot 4 = Dedicated PCI Express 2.0 x8 (x16 Mechanical) Slot 5 = Dedicated PCI Express 1.0 x4 (x8 Mechanical) Slot 6 = Dedicated PCI Express 2.0 x8	Slot 1 = Dedicated PCI Express 2.0 x8 Slot 2 = Dedicated PCI Express 2.0 x16 Slot 3 = Dedicated PCI Express 2.0 x8 Slot 4 = Dedicated PCI Express 2.0 x8 (x16 Mechanical) Slot 5 = Dedicated PCI Express 2.0 x4 (x8 Mechanical) Slot 6 = Dedicated PCI Express 2.0 x16 Slot 7 = Dedicated PCI Express 2.0 x8 - Slot #7 supports only short half length boards; Signatec SYNC1500-6 board only
Chipset:	Intel 5520 (Tylersburg)	Intel 5520 (Tylersburg)
CPU: (See Ordering Information for	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T	Supports Two 6-Core Intel Xeon 5600 Series CPU with 12MB Shared L3 Cache, 6.40 GT/s QPI, and EM64T
additional options)	1 – Xeon 6-Core 2.66GHz CPU Installed by Default	1 – Xeon 6-Core 2.66GHz CPU Installed by Default
Memory: (See Ordering Information for	Supports up to maximum 144GB (18 x 8GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM	Supports up to maximum 144GB (18 x 8GB) Triple Channel/Branch DDR3 1333MHz ECC SDRAM DIMM
additional options)	12GB (6 x 2GB FB-DIMMs) Installed by Default	12GB (6 x 2GB FB-DIMMs) Installed by Default
	Note: Each group of RAM banks require CPU installation for memory controller.	Note: Each group of RAM banks require CPU installation for memory controller.
Video:	Onboard Integrated ATI ES1000 SVGA with 32 MB RAM	Onboard Integrated Matrox G200eW SVGA with 32MB RAM
	Note: External video cards supported.	Note: External video cards supported.
Audio:	No Onboard Audio (Optional USB Audio Sold Separately)	Realtek ALC888 7.1 HD Audio
Onboard Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output
Onboard RAID:	Not Applicable	Not Applicable
I/O Ports:	1 – PS/2 Keyboard 1 – PS/2 Mouse 2 – USB 2.0 Rear 3 – USB 2.0 Internal Header 2 – USB 2.0 Onboard 1 – Serial COM Rear 1 – SVGA Video	 1 - PS/2 Keyboard 1 - PS/2 Mouse 6 - USB 2.0 Rear 3 - USB 2.0 Internal Header 1 - USB 2.0 Onboard 2 - 1394a FireWire Internal Header 1 - Serial COM Rear 1 - SVGA Video

IC2000 PASSIVE MOTHERBOARD OPTIONS

Passive Based Backplanes with Default Single Board Computer Installed Components

	P1	Ρ2	Р3
Form Factor:	20-Slot Backplane	14-Slot Backplane	14-Slot Backplane
Compatible with Chassis:	4P1 5P1	4P1, 4P2 5P1	4P1, 4P2 5P1
I/O Slots:	 Slot 1 = Single Board Computer Slot 2 = Dedicated PCI Express x4 (x8 mechanical) Slot 3 = Dedicated PCI Express x8 (x16 mechanical) Slot 4-7 = Shared PCI-X 64-bit 66MHz Slot 8-11 = Shared PCI-X 64-bit 66MHz Slot 12-15 = Shared PCI-X 64-bit 66MHz Slot 16-19 = Shared PCI-X 64-bit 66MHz Note: Slot #19 is not usable due to internal power cabling. Slot #2 is not usable for full length boards due to SBC CPU heatsinks. 	Slot 1 = Single Board Computer Slot 2 = Dedicated PCI Express x4 (x8 mechanical) Slot 3 = Dedicated PCI Express x8 (x16 mechanical) Slot 4 = Dedicated PCI-X 64-bit 133MHz Slot 5 = Dedicated PCI-X 64-bit 133MHz Slot 6-7 = Shared PCI-X 64-bit 100MHz Slot 8-9 = Shared PCI-X 64-bit 100MHz Slot 10-11 = Shared PCI-X 64-bit 100MHz Slot 12-13 = Shared PCI-X 64-bit 100MHz Note: Slot #2 is not usable for full length boards due to SBC CPU heatsinks.	Slot 1 = Single Board Computer Slot 2 = Dedicated PCI Express x8 Slot 3 = Dedicated PCI Express x8 (x16 mechanical) Slot 4-7 = Shared PCI Express x4 (x8 mechanical) Slot 8-11 = Shared PCI-X 64-bit 66MHz Slot 12-13 = Shared PCI-X 64-bit 100MHz Note: Slot #2 is not usable for full length boards due to SBC CPU heatsinks.
Chipset:	Intel 5000P (Blackford)	Intel 5000P (Blackford)	Intel 5000P (Blackford)
SBC CPU: (See Ordering Information for additional options)	Supports Two Quad-Core Intel Xeon 5400 Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon Quad Core 2.00GHz CPU Installed by Default	Supports Two Quad-Core Intel Xeon 5400 Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon Quad Core 2.00GHz CPU Installed by Default	Supports Two Quad-Core Intel Xeon 5400 Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon Quad Core 2.00GHz CPU Installed by Default
SBC Memory: (See Ordering Information for additional options)	Supports up to maximum 16GB (4 x 4GB) Dual Channel/Branch DDR2 667MHz ECC SDRAM 8GB (4 x 2GB) Installed by Default	Supports up to maximum 16GB (4 x 4GB) Dual Channel/Branch DDR2 667MHz ECC SDRAM 8GB (4 x 2GB) Installed by Default	Supports up to maximum 16GB (4 x 4GB) Dual Channel/Branch DDR2 667MHz ECC SDRAM 8GB (4 x 2GB) Installed by Default
SBC Video:	Onboard Integrated ATI ES1000 SVGA with 16MB RAM	Onboard Integrated ATI ES1000 SVGA with 16MB RAM	Onboard Integrated ATI ES1000 SVGA with 16MB RAM
	Note: External video cards supported.	Note: External video cards supported.	Note: External video cards supported.
Audio:	No Onboard Audio (Optional USB Audio Sold Separately)	No Onboard Audio (Optional USB Audio Sold Separately)	No Onboard Audio (Optional USB Audio Sold Separately)
SBC Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output
SBC I/O Ports:	6 – USB 2.0 Rear 1 – SVGA Video	6 – USB 2.0 Rear 1 – SVGA Video	6 – USB 2.0 Rear 1 – SVGA Video

IC2000 PASSIVE MOTHERBOARD OPTIONS (Continued)

Passive Based Backplanes with Default Single Board Computer Installed Components



Form Factor:	20-Slot Backplane		
Compatible with Chassis:	4P1 5P1		
I/O Slots:	 Slot 1 = Single Board Computer Slot 2 = Dedicated PCI Express x4 (x16 mechanical) Slot 3 = Dedicated PCI Express x4 (x16 mechanical) Slot 4-11 = Shared PCI Express x4 (x16 mechanical) Slot 6 & 9 are shared PCI Express x8 maximum Slot 12-19 = Shared PCI Express x4 (x16 mechanical) Slot 14 & 17 are shared PCI Express x8 maximum Note: Slot #19 is not usable due to internal power cabling. Slot #2 is not usable for full length boards due to SBC CPU heatsinks. 		
Chipset:	Intel 5000P (Blackford)		
SBC CPU: (See Ordering Information for additional options)	Supports Two Quad-Core Intel Xeon 5400 Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon Quad Core 2.00GHz CPU Installed by Default		
SBC Memory: (See Ordering Information for additional options)	Supports up to maximum 16GB (4 x 4GB) Dual Channel/Branch DDR2 667MHz ECC SDRAM 8GB (4 x 2GB) Installed by Default		
SBC Video:	Onboard Integrated ATI ES1000 SVGA with 16MB RAM Note: External video cards supported.		
Audio:	No Onboard Audio (Optional USB Audio Sold Separately)		
SBC Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output		
SBC I/O Ports:	6 – USB 2.0 Rear 1 – SXGA Video		

IC2000 SMALL MOBILE MOTHERBOARD OPTIONS

Small Mobile Based Backplanes with Default Installed Components

	01	63	63
Form Factor:	2-Slot Backplane	2-Slot Backplane	2-Slot Backplane
Compatible with Chassis:	MP1, MP3	MP1, MP3	MP1, MP3
I/O Slots:	Slot 1 = Shared PCI-X 64-bit 100MHz Slot 2 = Shared PCI-X 64-bit 100MHz	Slot 1 = Dedicated PCI Express x16 Slot 2 = Dedicated PCI-X 64-bit 133MHz	Slot 1 = Dedicated PCI Express x8 (x16 mechanical) Slot 2 = Dedicated PCI Express x8 (x16 mechanical)
CPU: (See Ordering Information for additional	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T
options)	1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default	1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default	1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default
Memory: (See Ordering	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM
Information for additional options)	8GB (4 x 2GB) Installed by Default	8GB (4 x 2GB) Installed by Default	8GB (4 x 2GB) Installed by Default
Video:	Onboard Integrated ATI Radeon X300 with 64MB RAM	Onboard Integrated ATI Radeon X300 with 64MB RAM	Onboard Integrated ATI Radeon X300 with 64MB RAM
Audio:	Integrated AC97 Audio	Integrated AC97 Audio	Integrated AC97 Audio
Integrated Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output
I/O Ports:	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video

IC2000 SMALL MOBILE MOTHERBOARD OPTIONS (Continued)

Small Mobile Based Backplanes with Default Installed Components

	84	85	S6
Compatible with Chassis:	MP2, MP4	MP2, MP4	MP2, MP4
Full Length I/O Slots:	1 – Shared PCI-X 64-bit 100MHz 1 – Dedicated PCI Express x16 2 – Shared PCI-X 64-bit 100MHz	 1 – Dedicated PCI-X 64-bit 100MHz 2 – Dedicated PCI Express x8 (x16 mechanical) 	 Dedicated PCI Express x8 (x16 mechanical) Dedicated PCI Express x4 (x16 mechanical) Dedicated PCI Express x8 (x16 mechanical)
CPU: (See Ordering Information for additional options)	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default	Supports Two Quad-Core Intel Xeon 5400 Low Voltage Series CPU with 2 x 6MB Shared L2 Cache, 1,333MHz Dual Independent Front Side Bus, and EM64T 1 – Xeon LV Quad Core 2.00GHz CPU Installed by Default
Memory: (See Ordering Information for additional options)	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM 8GB (4 x 2GB) Installed by Default	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM 8GB (4 x 2GB) Installed by Default	Supports up to 16GB (4 x 4GB) Dual Channel DDR2 SDRAM 8GB (4 x 2GB) Installed by Default
Video:	Onboard Integrated ATI Radeon X300 with 64MB RAM	Onboard Integrated ATI Radeon X300 with 64MB RAM	Onboard Integrated ATI Radeon X300 with 64MB RAM
Audio:	Integrated AC97 Audio	Integrated AC97 Audio	Integrated AC97 Audio
Integrated Networking:	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE-T, RJ45 Output	2 – Gigabit Ethernet, Supports 10BASE-T, 100BASE-TX, and 1000BASE- T, RJ45 Output
I/O Ports:	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video	4 – USB 2.0 1 – FireWire 1394a 400Mbps 1 – SVGA Video

IC2000 CHASSIS TOWER OPTIONS

	TA1	TE1	TE2
Rear & Internal Views: (Rear I/O ports vary with MB)			
MB Form Factor Support:	Standard ATX (12" x 9.6") (Does Not Support Full Length Boards)	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13")
MB Model Support:	A56X1	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3
IDSS 3.5" Drive Size:	4 Drives Max: All Internal Fixed	8 Drives Max: All Internal Fixed	8 Drives Max: All Internal Fixed
IDSS 2.5" Drive Size:	8 Drives Max: 4 Internal Fixed / 4 External Hot-Swap in 1 x 5.25" Bay	16 Drives Max: 4 Internal Fixed / 12 External Hot-Swap in 3 x 5.25" Bays	12 Drives Max: 4 Internal Fixed / 8 External Hot-Swap in 2 x 5.25" Bays
Power Supply:	Single 650W	Single 650W	Single 650W
Cooling Fans:	1 – 12cm Rear Fixed 3-Speed Exhaust 1 – 12cm Rear Fixed Slot 3-Speed Exhaust	1 – 12cm Rear Fixed Exhaust 2 – 14cm Top Fixed Exhaust 1 – 20cm Side Fixed Exhaust	1 – 12cm Rear Fixed Exhaust 2 – 9cm Internal Fixed
Front Ports: (Ports connection vary with MB)	2 – USB 2.0 1 – eSATA Audio In/Out	2 – USB 2.0 1 – eSATA Audio In/Out	2 – USB 2.0
Dimensions:	8.1" W x 18.9" H x 17.3" D (20.5cm W x 48.1cm H x 44.0cm D)	9.5" W x 20.25" H x 23.25" D (24.13cm W x 51.4cm H x 59cm D)	8.1" W x 17.6" H x 23.0" D (20.5cm W x 44.6cm H x 58.4cm D)
Approximate Weight:	25.6 lbs (11.6 kg)	62.0 lbs (28.1 kg)	36.0 lbs (16.3 kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Regulatory Info:	UL, CUL, FCC Class B, CB, TÜV	UL, CUL, FCC Class B, CB, TÜV	UL, CUL, FCC Class B, CB, TÜV
Standard Items Included: (See Ordering Information for additional options)	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD- ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 	 1 – ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS

IC2000 CHASSIS TOWER OPTIONS

	TE3	TH1
Rear & Internal Views: (Rear I/O ports vary with MB)		
MB Form Factor Support:	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13") Enhanced Extended ATX (13.68" x 13")
MB Model Support:	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3 H56X1, H56X2
IDSS 3.5" Drive Size:	4 Drives Max: 4 Ext. Hot-Swap	8 Drives Max: 8 Ext. Hot-Swap
IDSS 2.5" Drive Size:	8 Drives Max: 4 Fixed in Modified 3.5" External Bays / 4 External Hot-Swap in 1 x 5.25" Bay	12 Drives Max: 8 Fixed in Modified 3.5" External Bays / 4 External Hot-Swap in 1 x 5.25" Bay
Power Supply:	Single 650W	Redundant 800W
Cooling Fans:	1 – 12cm Rear Fixed Exhaust 1 – 9cm Internal Fixed	2 – 8cm Hot-Swap Rear Exhaust 3 – 8cm Hot-Swap Internal
Front Ports: (Ports connection vary with MB)	2 – USB 2.0	2 – USB 2.0
Dimensions:	7" W x 16.8" H x 20.9" D (17.8cm W x 42.7cm H x 53.1cm D)	7" W x 17.2" H x 25.5" D (17.8cm W x 43.7cm H x 64.8cm D)
Approximate Weight:	40 lbs (18.2 kg)	58 lbs (26.3 kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Regulatory Info:	USA – UL Listed, FCC Canada – CUL Listed Germany – TUV Certified Europe/CE Mark EN 60950/IEC 60950-Compliant	USA – UL Listed, FCC Canada – CUL Listed Germany – TUV Certified Europe/CE Mark EN 60950/IEC 60950-Compliant
Standard Items Included: (See Ordering Information for additional options)	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD- ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS

IC2000 CHASSIS 3U RACKMOUNT OPTIONS

	3A1	3E2	3E3
Rear View: (Rear I/O ports vary with MB)			
MB Form Factor Support:	Standard ATX (12" x 9.6") (Does Not Support Full Length Boards)	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13")
MB Model Support:	A56X1	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3
IDSS 3.5" Drive Size:	4 Drives Max: All Internal Fixed	4 Drives Max: All Internal Fixed	12 Drives Max: All External Hot-Swap
IDSS 2.5" Drive Size:	20 Drives Max: 20 External Hot-Swap in 5 x 5.25" Bays	20 Drives Max: 20 External Hot-Swap in 5 x 5.25" Bays	12 Drives Max: All Fixed in Modified 3.5" External Bays
Power Supply:	Single 600W	Single 600W	Redundant 650W
Cooling Fans:	3 – 9cm Internal Fixed	3 – 9cm Internal Fixed	2 – 6cm Rear Fixed Exhaust 3 – 9cm Hot-Swap Internal
Front Ports: (Ports connection vary with MB)	1 – USB 2.0 1 – eSATA	1 – USB 2.0 1 – eSATA	2 – USB 2.0
Dimensions:	17"W x 5.2"H x 22.5"D (43.18cm W x 13.2cm H x 57.2cm D)	17"W x 5.2"H x 26"D (43.18cm W x 13.2cm H x 66cm D)	16.9"W x 5.2"H x 26"D (43cm W x 13.2cm H x 66cm D)
Approximate Weight:	27.5 lbs (12.5kg)	29 lbs (13.5kg)	70 lbs (31.75kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Regulatory Info:	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950
Standard Items Included: (See Ordering Information for additional options)	 1 - ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 - DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit 	 1 - ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 - DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit 	 1 - ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 - DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD- ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit

IC2000 CHASSIS 3U RACKMOUNT OPTIONS (Continued)

	3E4	3H1	3H2	
Rear View: (Rear I/O ports vary with MB)				
MB Form Factor Support:	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13") Enhanced Extended ATX (13.68" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13") Enhanced Extended ATX (13.68" x 13")	
MB Model Support:	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3 H56X1, H56X2	A56X1 E56X1, E56X2, E56X3 H56X1, H56X2	
IDSS 3.5" Drive Size:	16 Drives Max: All External Hot-Swap	8 Drives Max: 8 Ext. Hot-Swap	16 Drives Max: All External Hot-Swap	
IDSS 2.5" Drive Size:	16 Drives Max: All Fixed in Modified 3.5" External Bays	16 Drives Max: 8 Fixed in Modified 3.5" External Bays / 8 External Hot-Swap in 2 x 5.25" Bays	16 Drives Max: All Fixed in Modified 3.5" External Bays	
Power Supply:	Redundant 840W	Redundant 800W	Redundant 800W	
Cooling Fans:	2 – 8cm Hot-Swap Rear Exhaust 4 – 8cm Hot-Swap Internal	2 – 8cm Hot-Swap Rear Exhaust 3 – 8cm Hot-Swap Internal	2 – 8cm Hot-Swap Rear Exhaust 3 – 8cm Hot-Swap Internal	
Front Ports: (Ports connection vary with MB)	2 – USB 2.0	None	2 – USB 2.0	
Dimensions:	17"W x 5.2"H x 26"D (43.2cm W x 13.2cm H x 66cm D)	17.7" W x 5.2" H x 25.6" D (45cm W x 13.2cm x 65cm D)	17.2" W x 5.2" H x 25.5" D (43.7cm W x 13.2cm x 64.8cm D)	
Weight (Bare):	75 lbs (34.0kg)	75 lbs (34.0kg)	75 lbs (34.0kg)	
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	
Regulatory Info:	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	USA - UL listed Canada - CUL listed Germany - TUV Certified EN 60950/IEC 60950-Compliant CB Report CCC Certification	USA - UL listed Canada - CUL listed Germany - TUV Certified EN 60950/IEC 60950-Compliant CB Report CCC Certification	
Standard Items Included: (See Ordering Information for additional options)	 1 - 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 - DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD- ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	

IC2000 CHASSIS 4U RACKMOUNT OPTIONS

	4A1	4E1	4E2	
	15° 19°			
Rear View: (Rear I/O ports vary with MB)				
MB Form Factor Support:	Standard ATX (12" x 9.6")	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	
MB Model Support:	A56X1	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3	
IDSS 3.5" Drive Size:	Not Applicable	8 Drives Max: All Internal Fixed	16 Drives Max: All External Hot-Swap	
IDSS 2.5" Drive Size:	8 Drives Max: 8 External Hot-Swap in 2 x 5.25" Bays	24 Drives Max: 24 External Hot-Swap in 6 x 5.25" Bays	20 Drives Max: 16 Fixed in Modified 3.5" External Bays / 4 External Hot-Swap in 1 x 5.25" Bays	
Power Supply:	Single 650W	Single 650W	Redundant 650W	
Cooling Fans:	1 – 12cm Internal Fixed	2 – 8cm Rear Fixed Exhaust 1 – 12cm Internal Fixed	2 – 8cm Rear Fixed Exhaust 5 – 8cm Hot-Swap Internal	
Front Ports: (Ports connection vary with MB)	2 – USB 2.0	2 – USB 2.0	2 – USB 2.0	
Dimensions:	19"W x 7"H x 15"D (48.26cm W x 17.78cm H x 38.10cm D)	17" W x 7" H x 22" D (43.18cm W x 17.78cm H x 55.88cm D)	16.9" W x 6.9" H x 26" D (43cm W x 17.6cm H x 66cm D)	
Approximate Weight:	32 lbs (14.51 kg)	37.5 lbs (17.01 kg)	85 lbs (38.6kg)	
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	
Regulatory Info:	UL, CUL, FCC Class B, CB, TÜV	UL, CUL, FCC Class B, CB, TÜV	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	
Standard Items Included: (See Ordering Information for additional options)	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X – OR – External USB Slim DVD Writer if 8-Drive IDSS Option is Used. 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD- ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	

IC2000 CHASSIS 4U RACKMOUNT OPTIONS

	4E3	4H1	4H2	
Rear View: (Rear I/O ports vary with MB)				
MB Form Factor Support:	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13") Enhanced Extended ATX (13.68" x 13")	Standard ATX (12" x 9.6") Extended ATX (12" x 13") Enhanced Extended ATX (13.68" x 13")	
MB Model Support:	A56X1 E56X1, E56X2, E56X3	A56X1 E56X1, E56X2, E56X3 H56X1, H56X2	A56X1 E56X1, E56X2, E56X3 H56X1, H56X2	
IDSS 3.5" Drive Size:	Not Applicable	8 Drives Max: 8 Ext. Hot-Swap	24 Drives Max: All External Hot-Swap	
IDSS 2.5" Drive Size:	e: 48 Drives Max: All External Hot-Swap 12 Drives Max: 8 Fixed in Modified 3.5" External Bays / 4 External Hot-Swap in 1 x 5.25" Bays		24 Drives Max: 24 Fixed in Modified 3.5" External Bays	
Power Supply:	Redundant 1140W	Redundant 800W	Redundant 900W	
Cooling Fans:	2 – 8cm Rear Fixed Exhaust 4 – 8cm Hot-Swap Internal	2 – 8cm Hot-Swap Rear Exhaust 3 – 8cm Hot-Swap Internal	2 – 8cm Hot-Swap Rear Exhaust 3 – 8cm Hot-Swap Internal	
Front Ports: (Ports connection vary with MB)	2 – USB 2.0	2 – USB 2.0	Not Applicable	
Dimensions:	16.9" W x 6.9" H x 26" D (43cm W x 17.6cm H x 66cm D)	17.2" W x 7" H x 25.5" D (43.7cm W x 17.78cm H x 64.8cm D)	17.2" W x 7" H x 26" D (43.7cm W x 17.8cm H x 66cm D)	
Approximate Weight:	43.87 lbs (19.9kg)	58 lbs (26.3 kg)	75 lbs (34.0kg)	
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	
Regulatory Info:	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	USA – UL Listed, FCC Canada – CUL Listed Germany – TUV Certified Europe/CE Mark EN 60950/IEC 60950-Compliant	USA – UL Listed, FCC Canada – CUL Listed Germany – TUV Certified Europe/CE Mark EN 60950/IEC 60950-Compliant	
Standard Items Included: (See Ordering Information for additional options)	 1 - 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 - External USB 2.0 DVD Writer, 1.5MB Cache, Supports DVD±R 8X, DVD+R DL 8X, DVD-R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD- ROM 8X, CD-R 24X, CD-RW 24X, CD- ROM 24X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD- ROM 48X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer (in Rear), 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD- RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	

IC2000 CHASSIS 4U RACKMOUNT OPTIONS (Continued)

	4P1	4P2
Rear View: (Rear I/O ports vary with MB)		
MB Form Factor Support:	Up to 20-Slot Passive Backplane	Up to 14-Slot Passive Backplane
MB Model Support:	P1, P2, P3, P4	P2, P3
IDSS 3.5" Drive Size:	4 Drives Max: All Internal Fixed	16 Drives Max: All External Hot-Swap
IDSS 2.5" Drive Size:	8 Drives Max: 8 Ext. Hot-Swap	16 Drives Max: 16 Fixed in Modified 3.5" External Bays
Power Supply:	Redundant 500W	Redundant 650W
Cooling Fans:	4 – 9cm Hot-Swap Internal	2 – Rear Fixed Exhaust 3 – Internal Fixed
Front Ports: (Ports connection vary with MB)	Not Applicable	2 – USB 2.0
Dimensions:	19" W x 6.95" H x 26.4" D (48.3cm W x 17.7cm H x 67.1cm D)	17" W x 6.95" H x 25.47" D (43.18cm W x 17.7cm H x 64.7cm D)
Approximate Weight:	50 lbs. (22.7 kg)	75 lbs (34.0kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Regulatory Info:	USA – UL Listed Europe/CE Mark	UL, CUL, FCC Class B, CB, TÜV
Standard Items Included: (See Ordering Information for additional options)	 1 - ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 - DVD LightScribe Writer, 2MB Cache, SATA/150, Supports DVD±R 24X, DVD±R DL 12X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 12X, DVD-ROM 16X, CD-R 48X, CD-RW 32X, CD-ROM 48X 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit

IC2000 CHASSIS 5U & 9U RACKMOUNT OPTIONS

	5E1	5P1	9E1	
Rear View: (Rear I/O ports vary with MB)				
MB Form Factor Support:	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	Up to 20-Slot Passive Backplane	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	
MB Model Support:	A56X1 E56X1, E56X2, E56X3	P1, P2, P3, P4	A56X1 E56X1, E56X2, E56X3	
IDSS 3.5" Drive Size:	24 Drives Max: All External Hot-Swap	24 Drives Max: All External Hot-Swap	48 Drives Max: All External Hot-Swap	
IDSS 2.5" Drive Size:	24 Drives Max: 24 Fixed in Modified 3.5" External Bays	24 Drives Max: 24 Fixed in Modified 3.5" External Bays	48 Drives Max: 48 Fixed in Modified 3.5" External Bays	
Power Supply:	Redundant 1350W	Redundant 1050W	Redundant 1620W	
Cooling Fans:	2 – 6cm Rear Fixed Exhaust 8 – 8cm Hot-Swap Internal	2 – 8cm Rear Fixed Exhaust 3 – 12cm Hot-Swap Internal	4 – 8cm Hot-Swap Rear Exhaust 2 – 12cm Hot-Swap Rear Exhaust 8 – 8cm Hot-Swap Internal	
Front Ports: (Ports connection vary with MB)	2 – USB 2.0	2 – USB 2.0	2 – USB 2.0	
Dimensions:	16.9" W x 8.8" H x 26" D (43cm W x 22cm H x 66cm D)	16.9" W x 8.8" H x 25.35" D (43cm W x 22cm H x 64.4cm D)	16.9" W x 8.8" H x 26" D (43cm W x 22cm H x 66cm D)	
Approximate Weight:	124 lbs. (56.2 kg)	110 lbs. (50 kg)	160 lbs. (72.57 kg)	
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	
Regulatory Info:	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	UL, CUL, FCC Class B, CB, TÜV	FCC CLASS A, CISPR22 CLASS A, UL 1950, CSA 22.2 NO/ 950, TÜV IEC 950	
Standard Items Included: (See Ordering Information for additional options)	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD- RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	 1 – 1TB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD- ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Rackmount Rail Kit 	

IC2000 CHASSIS MOBILE OPTIONS

	ME1	MP1	MP2
Rear View: (Rear I/O ports vary with MB)			
MB Form Factor Support:	Standard ATX (12" x 9.6") Extended ATX (12" x 13")	2-Slot Passive Backplane	3-Slot Passive Backplane
MB Model Support:	A54X1, A55X1, A55X2 E54X1, E54X2, E54X3, E55X1, E55X2, E55X3	\$1, \$2, \$3	S4, S5, S6
IDSS 3.5" Drive Size:	4 Drives Max: All External Hot-Swap	Not Applicable	Not Applicable
IDSS 2.5" Drive Size:	8 Drives Max: 4 Fixed in Modified 3.5"	4 Drives Max: 3 Int. Fix / 1 Ext. Hot-Swap	16 Drives Max: 15 Int. Fix / 1 Ext. Hot-Swap
	4 External Hot-Swap in 1 x 5.25" Bays	(Max. Drive Configuration Depends on # of Board Types Installed.)	(Max. Drive Configuration Depends on # of Board Types Installed.)
Power Supply:	Single 650W	Single 400W	Single 400W
Cooling Fans:	2 - 4cm Left Side Exhaust Fans1 - 10cm Right Side Exhaust Fan2 - 6cm Back Side Exhaust Fans2 - 4cm Right Side Exhaust Fans1 - 6cm Bottom Intake Fan2 - 6cm Back Side Exhaust Fans		1 – 10cm Right Side Exhaust Fan 2 – 4cm Right Side Exhaust Fans 1 – 6cm Bottom Intake Fan 2 – 6cm Back Side Exhaust Fans
Integrated LCD:	20.1" TFT up to 1600x1200 UXGA LCD	17" WUXGA+ up to 1920x1200 Resolution	17" WUXGA+ up to 1920x1200 Resolution
Dimensions:	20.0" W x 15.0" H x 9.57" D (50.8cm W x 38.1cm H x 24.31cm D)	16.8" W x 11.44" H x 4.44" D (42.7cm W x 29.08cm H x 11.28cm D)	16.8" W x 11.44" H x 5.69" D (42.7cm W x 29.08cm H x 14.45cm D)
Approximate Weight:	55 lbs. (24.9 kg)	19.5 lbs (8.9 kg)	19.5 lbs (8.9 kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Regulatory Info:	FCC, CE, CCC	FCC CLASS A Europe/CE Mark	FCC CLASS A Europe/CE Mark
Standard Items Included: (See Ordering Information for additional options)	 1 – ITB 7200RPM 32MB Cache 3.5" SATA/300 OS Hard Drive 1 – DVD Slim Slot Load Writer, 2MB Cache, SATA/150, Supports DVD±R 8X, DVD±R DL 6X, DVD+RW 8X, DVD-RW 6X, DVD-RAM 5X, DVD-ROM 8X, CD-R 24X, CD-RW 24X, CD-ROM 24X 1 – MS Windows 7 Professional 64-bit OS 1 – Soft Carrying Case 	 1 - 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 - DVD Slim Writer DVD±R/RW 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Soft Carrying Case 	 1 – 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 – DVD Slim Writer DVD±R/RW 1 – MS Digital Media Keyboard 3000 1 – MS IntelliMouse Explorer 4.0 Mouse 1 – MS Windows 7 Professional 64-bit OS 1 – Soft Carrying Case

IC2000 CHASSIS MOBILE OPTIONS (Continued)

	MP3	MP4
		V
Rear View: (Rear I/O ports vary with MB)		
MB Form Factor Support:	2-Slot Passive Backplane	3-Slot Passive Backplane
MB Model Support:	S1, S2, S3	S4, S5, S6
IDSS 3.5" Drive Size:	Not Applicable	Not Applicable
IDSS 2.5" Drive Size:	4 Drives Max: 3 Int. Fix / 1 Ext. Hot-Swap	12 Drives Max: 11 Int. Fix / 1 Ext. Hot-Swap
	(Max. Drive Configuration Depends on # of Board Types Installed.)	(Max. Drive Configuration Depends on # of Board Types Installed.)
Power Supply:	Single 400W	Single 400W
Cooling Fans:	1 – 10cm Right Side Exhaust Fan 2 – 4cm Right Side Exhaust Fans 1 – 6cm Bottom Intake Fan 2 – 6cm Back Side Exhaust Fans	1 – 10cm Right Side Exhaust Fan 2 – 4cm Right Side Exhaust Fans 1 – 6cm Bottom Intake Fan 2 – 6cm Back Side Exhaust Fans
Integrated LCD:	15" UXGA up to 1600x1200 Resolution	17" WUXGA+ up to 1920x1200 Resolution
Dimensions:	16.6" W x 11.1" H x 5.6" D (42.16cm W x 28.19cm H x 14.22cm D)	18.8" W x 13.44" H x 7.69" D (47.75cm W x 34.14cm H x 19.53cm D)
Approximate Weight:	23 lbs (10.5 kg)	26.5 lbs (12 kg)
Temperature:	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)	Operating: 41° to 122° F (5° to 50° C) Non-Operating: -40° to 158° F (-40° to 70° C)
Humidity: (Non-Condensing)	Operating: 8 to 90 % Non-Operating: 5 to 95 %	Operating: 8 to 90 % Non-Operating: 5 to 95 %
Shock:	200Gs/2ms (half-sine wave)	Mechanical Shock: ≤10g, 11ms, Terminal Sawtooth, Operating Transit Shock: 18" Drop
Vibration:	Operating: 1G (5–500Hz) (sine-wave) Non-operating: 5G (22–500Hz) (sine-wave)	≤0.04g2/Hz, 20Hz–1,000Hz -6dB/octive 1,000Hz–2,000Hz
Regulatory Info:	FCC CLASS A Europe/CE Mark	FCC CLASS A Europe/CE Mark
Standard Items Included: (See Ordering Information for additional options)	 1 – 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 – DVD Slim Writer DVD±R/RW 1 – MS Windows 7 Professional 64-bit OS 1 – Soft Carrying Case 	 1 - 500GB 7200RPM 16MB Cache 2.5" SATA/300 OS Hard Drive 1 - DVD Slim Writer DVD±R/RW 1 - MS Digital Media Keyboard 3000 1 - MS IntelliMouse Explorer 4.0 Mouse 1 - MS Windows 7 Professional 64-bit OS 1 - Soft Carrying Case

IC2000 LAPTOP OPTIONS

	L17A
Side Views:	
CPU:	Intel Core i5-520M Dual Core 2.40GHz, 3MB L2 Cache with Turbo Boost up to 2.93GHz
Memory:	8GB DDR3 System Memory (2 DIMMs)
Video:	512 MB Nvidia GeForce G 105M Discrete Graphics
Screen Size:	17.3" Diagonal HD+ High-Definition HP LED BrightView Widescreen Display (1600 x 900)
OS Hard Drive:	500GB 7200RPM SATA Hard Drive
Data Recording Drive:	200GB Solid State SATA Drive with Sequential Write Transfer Rate up to 275 MB/sec
Integrated Networking:	10/100BASE-T Ethernet LAN (RJ-45) Intel Wireless-N Card with Bluetooth
Optical Drive:	LightScribe SuperMulti 8X DVD+/-RW with Double Layer Support
Media Drive:	5-in-1 Integrated Digital Media Reader
Ports:	4 x USB 2.0 (4th shared with eSATA port) 1 x IEEE 1394 Firewire 1 x HDMI 1 x VGA Integrated Webcam Altec Lansing Stereo Speakers
ExpressCard Slots:	1 x ExpressCard/54
Operating System:	Windows 7 Professional 64-bit Operating System (English only)
Battery:	8 Cell Lithium Ion Battery (up to 4.75 hours)
Dimensions:	16.2" W x 1.7" H x 10.9" D (41.15cm W x 4.32cm H x 27.69cm D)
Approximate Weight:	7.74 lbs (3.51 kg)

DSS – DATA STORAGE SYSTEM

Overview

The Data Storage System (DSS) product provides a RAID system that has been **specifically tailored for real-time wideband signal data recording applications**. One of the primary usages is as a large data repository for high-speed data acquisition applications. Such applications require a guaranteed continuous transfer rate with no missing data. Unlike other generic storage systems, the DSS is engineered for performance under these exacting conditions.

Virtually all RAID storage systems have specifications that are highly misleading in terms of actual sustainable transfer rates to the drives. In most cases the only number specified is the peak "bandwidth" data rate for the bus type used. Actual sustained performance varies dramatically among the various RAID manufacturer and components. Leveraging high-performance commercial-off-the-shelf (COTS) technologies and its decades of advanced signal technology experience, Signatec engineered the DSS product to achieve the highest "sustained" transfer rates possible with Signatec products.

The IDSS product option is an "internal" based data storage system that consists of a high-performance PCI based RAID controller board and high-performance hot-swap drives that are integrated within Signatec's IC2000 high-performance workstation system models.

The EDSS product option is an "external" based data storage system that consists of a PCI based RAID controller board installed within Signatec's IC2000 high-performance workstation system models and an external drive storage chassis with hot-swap drives. Cables are provided to connect the external drive storage chassis to the RAID controller card that is housed within the IC2000 workstation system.

The IDSS / EDSS systems appear to the user as a standard storage device within the installed operating system and all standard OS file operations may be performed on it.

The RAID Storage Concept

RAID storage systems conform to various data storage and redundancy concepts defined as "levels". Although capable of operating at various RAID levels, in order to maximize performance the DSS is set up and is specifically focused for operation at RAID Level 0. In this mode there is no data redundancy in order to provide the maximum transfer rate performance possible and maximize the amount of available storage space.

The DSS with RAID Level 0 writes stripes of data across multiple drives instead of just one drive, breaking up data into smaller blocks and then writing a block to each drive in the array. Drive striping enhances performance because multiple drives are accessed simultaneously, aggregating the throughput of each individual drive's sustained transfer rate performance.



Data Recorder Applications

Shown is a block diagram for constructing a single chassis recorder application for digitizing an analog signal and storing a long data record to a file in real-time at 2.8 GB/sec. The captured signal may be long and continuous or periodic snapshots.



Signatec's advanced digitizers are first integrated into the system and are used to acquire signal data to the A/D board channels. Multiple channels can be added by utilizing the digitizer products' masterslave operation feature that allows for linking multiple A/D boards to create a synchronized multi-channel acquisition system. In masterslave operation, the master board drives the clock and trigger signals for the slave boards so that data on the slave boards align sample-forsample with the data on the master board. In addition a SYNC1500-6 board can be added that can provide clock, trigger, and synchronization signals for up to 6 data acquisition boards either within a single chassis or across multiple chassis, thus further expanding possible scaled rates and capacities.

Signatec's products feature a unique technology called PCI Buffered Acquisition Mode. In PCI Buffered Acquisition mode, Signatec's digitizer boards are able to acquire data to their onboard RAM as well as transfer the data from the onboard RAM to the PC simultaneously. In short, all of the A/D board's onboard memory is configured to work as a FIFO, which provides ample data buffering between the A/D board and PC for the most demanding waveform data recording applications. Even when performing segmented acquisitions, where there are gaps in the record between acquisitions, PCI Buffered Acquisition mode will allow for a much higher total throughput than standard acquisition instruments due to being able to acquire and transfer data simultaneously.

Once the signal data is transferred efficiently to the system PC RAM through PCI Buffered Acquisition mode, it is then transferred to the DSS RAID Adapter; which in turn writes the data to the DSS drives. Additional Signatec DSP and Signal Generator products can also be added to the system, effectively converting the PC into a signal acquisition, real-time processor, recorder and playback solution.



DSS – DRIVE MODELS

DSS Drive Type Models and Specifications

The following tables detail the current drive type models available for use with the DSS. The total number and type of drives that can be selected is dependent on the selected chassis model chosen for the IC2000 system or external EDSS chassis model chosen. Signatec periodically upgrades the drive types that are incorporated into the standard DSS product. Drive types are designated by a letter suffix to the model part number to differentiate them. Newer drive types will typically be compatible with older systems and can be used as replacements for defective drives or to upgrade the system performance.

DSS Software

The DSS is supplied with software that includes device drivers for the RAID controller board and utility applications for reconfiguring the system for situations such as replacing a defective drive or expanding the system through the addition of drives. The DSS is also supplied with Signatec programs and example applications for performing data recordings with the selected Signatec products to be installed in the system.

	3.5" Hard Drives		
	3C1	3C2	3C3
Drive Capacity (Unformatted GB):	500	1,000	2,000
Interface Transfer Rate (Gbps):	6.0 SAS	6.0 SAS	6.0 SAS
Max. Sustained Transfer Rate (MB/s):	150	150	150
Cache, Multisegmented (MB):	16	16	16
Spindle Speed (RPM):	7,200	7,200	7,200
Average Latency (msec):	4.16	4.16	4.16
MTBF (hours):	1.2 million	1.2 million	1.2 million
Reliability Rating at Full 24x7	0.73%	0.73%	0.73%
Operation (AFR):			
Read Bit Error Rate:	1 sector per 10 ¹⁵	1 sector per 10 ¹⁵	1 sector per 10 ¹⁵
Power (Watts)			
Operating Average:	9.2 - 10.4	9.6 - 10.8	11.2 - 12.2
Idle Average:	5.6	6.0	8.0
Acoustics (bels)			
Idle (typical):	1.90	2.2	2.7
Seek (typical):	2.70	2.8	2.9
Temperature			
Operating:	5 to 60 C	5 to 60 C	5 to 60 C
Non-operating:	-40 to 70 C	-40 to 70 C	-40 to 70 C
Shock (Read/Write)			
Operating (max at 2 msec):	70/40 Gs	70/40 Gs	70/40 Gs
Non-operating (max at 2 msec):	350 Gs	350 Gs	300 Gs
Altitude (Operating):	-60.96 m to 3,048 m	-60.96 m to 3,048 m	-60.96 m to 3,048 m
	(-200 ft. to 10,000+ ft.)	(-200 ft. to 10,000+ ft.)	(-200 ft. to 10,000+ ft.)
Altitude (Non-Operating):	-60.96 m to 12,192 m	-60.96 m to 12,192 m	-60.96 m to 12,192 m
	(-200 ft. to 40,000+ ft.)	(-200 ft. to 40,000+ ft.)	(-200 ft. to 40,000+ ft.)
Weight:	1.345 lbs (0.61 kg)	1.411 lbs (0.64 kg)	1.565 lbs (0.71 kg)
Manufacturer Limited Warranty:	5 Years	5 Years	5 Years

2.5" Hard Drive
2A1
500
3.0 SATA
95
32
7,200
4.16
1.2 million
0.73%
1 sector per 10 ¹⁵
3.5 - 4.4
2.6
2.3
2.6
5 to 55 C
-40 to 70 C
7 0 G
70 Gs
400 Gs
-60.96 m to 3,048 m
(-200 ft. to 10,000+ ft.)
-60.96 m to 12,192 m
(-200 ft. to 40,000+ ft.)
0.43 lbs (0.196 kg)
5 Years

	2.5" Solid State Drives			
	2SC1	2SC2		
Drive Capacity (Unformatted GB):	200	400		
SATA Interface Transfer Rate (Gbps):	3.0	3.0		
Max. Sequential Write Rate (MB/s):	275	275		
Max. Sequential Read Rate (MB/s):	285	285		
Flash NAND Type:	Multi Level Cell	Multi Level Cell		
Data Reliability:	ECC: 27 bytes of redundancy per	ECC: 27 bytes of redundancy per		
	512 bytes data. Up to 12 9-bit	512 bytes data. Up to 12 9-bit		
	symbols correctable	symbols correctable		
Mean Time Before Failure (MTBF):	10 million hours	10 million hours		
Power (Watts)				
Operating Average:	2.00	2.00		
Temperature				
Operating:	0 to 70 C	0 to 70 C		
Non-operating:	-45 to 85 C	-45 to 85 C		
Shock				
Operating: 0.5 msec	1,500 Gs	1,500 Gs		
Altitude (Operating / Non-Operating):	Drive is not sensitive to changes in	Drive is not sensitive to changes in		
	altitude because it has no moving	altitude because it has no moving		
	parts.	parts.		
Weight:	0.201 lbs (0.091 kg)	0.201 lbs (0.091 kg)		
Manufacturer Limited Warranty:	3 Years	3 Years		

DSS – INTERNAL AND EXTERNAL MODELS

Internal IDSS Models

The IDSS product is an "internal" based storage system in which the PCI based RAID controller board and drives are integrated within Signatec's IC2000 high-performance workstation system models. The integration capability of the IDSS system within the IC2000 models provides for a high performance single unit workstation/data storage system. Please refer to the previous IC2000 Chassis Option Sections to review the "IDSS 3.5" Drive Size" and "IDSS 2.5" Drive Size" support specification that details each chassis model's maximum number of DSS drives supported. Note that some chassis models have 3.5" drive bays that are capable of being modified for use with 2.5" based drives; depending on the chassis model type, this modification may restrict the use of the 2.5" based drives to be fixed as opposed to being truly hot-swappable. This is indicated within the specifications as being "Fixed" or "Fix" as opposed to "Hot-Swappable" or "Hot-Swap". Please review these specifications carefully when selecting an IC2000 chassis model for use with an IDSS model.

External EDSS Models

The EDSS product is an "external" based data storage system that consists of a PCI based RAID controller board installed within Signatec's IC2000 high-performance workstation system models and an external drive storage chassis with hot-swap drive bays. Cables are provided to connect the external drive storage chassis to the RAID controller card that is housed within the IC2000 workstation system. The cable interconnection between the internal RAID controller board and the external drive storage chassis requires the availability of at least 1 rear I/O slot on the IC2000 chassis. Multiple external chassis models can be selected for use depending on the number of DSS RAID controllers selected for the system and the type of IC2000 chassis model selected with available rear I/O slots for cable interconnections. The following external drive storage chassis models can be selected with the EDSS option. Note that these chassis models have 3.5" drive bays that are capable of being modified for use with 2.5" based drives; this modification restricts the use of the 2.5" based drives to be fixed as opposed to being truly hot-swappable. This is indicated within the specifications as being "Fixed". Please review these specifications carefully when selecting an EDSS chassis model.

	4T	8T	4R	12R	16R
			™ ●		
DSS 3.5"	4 Drives Max:	8 Drives Max:	4 Drives Max:	12 Drives Max:	16 Drives Max:
Drive Size:	All External Hot-Swap	All External Hot-Swap	All External Hot-Swap	All External Hot-Swap	All External Hot-Swap
DSS 2.5"	4 Drives Max:	8 Drives Max:	4 Drives Max:	12 Drives Max:	16 Drives Max:
Drive Size:	All Fixed	All Fixed	All Fixed	All Fixed	All Fixed
DSS RAID Card Support:	Up to 4 Enclosures per DSS RAID Card and 1 I/O Rear Slot	Up to 2 Enclosures per DSS RAID Card and 1 I/O Rear Slot	Up to 4 Enclosures per DSS RAID Card and 1 I/O Rear Slot	Up to 1 Enclosure per DSS RAID Card and 1 I/O Rear Slot	Up to 1 Enclosure per DSS RAID Card and 1 I/O Rear Slot
Power Supply:	Single 150W	Single 300W	Single 150W	Single 400W	Single 400W
Cooling Fans:	2 – 6cm Rear Fixed	4 – 6cm Rear Fixed	2 – 7.5cm Rear Fixed	2 – 6cm Rear Fixed	3 – 8cm Rear Fixed
	Exhaust	Exhaust	Exhaust	Exhaust	Exhaust
Dimensions:	Desktop Tower	Desktop Tower	1U Rackmount	2U Rackmount	3U Rackmount
	6.17" W x 8.26" H x	6.17" W x 12.20" H x	18.99" W x 1.73" H x	18.99" W x 3.48" H x	18.99" W x 5.16" H x
	9.11" D	9.11" D	17.83" D	17.95" D	17.95" D
	(15.68cm W x 20.97cm H	(15.68cm W x 31.00cm H	(48.20cm W x 4.40cm H x	(48.20cm W x 8.85cm H x	(48.20cm W x 13.10cm H x
	x 23.15cm D)	x 23.15cm D)	45.30cm D)	45.60cm D)	45.60cm D)

Please note that due to a wide variety of PC system architecture types, the performance of Signatec IDSS / EDSS products can not be guaranteed with non-Signatec based systems. It is highly recommended that the selection of a Signatec IDSS or EDSS product be coupled with a selection of a Signatec based IC2000 workstation system to guarantee the maximum performance possible with use of Signatec's A/D, DSP, and D/A products.

ORDERING INFORMATION – IC2000

IC2000 Part Number Format

IC2K – [Chassis] – [Motherboard]

[Chassis]:

TA1 = Base Tower "TA1" Chassis Model **TE1** = Base Tower "TE1" Chassis Model TE2 = Base Tower "TE2" Chassis Model **TE3** = Base Tower "TE3" Chassis Model TH1 = Base Tower "TH1" Chassis Model **3A1** = Base 3U Rackmount "3A1" Chassis Model **3E2** = Base 3U Rackmount "3E2" Chassis Model **3E3** = Base 3U Rackmount "3E3" Chassis Model **3E4** = Base 3U Rackmount "3E4" Chassis Model **3H1** = Base 3U Rackmount "3H1" Chassis Model **3H2** = Base 3U Rackmount "3H2" Chassis Model **4A1** = Base 4U Rackmount "4A1" Chassis Model **4E1** = Base 4U Rackmount "4E1" Chassis Model **4E2** = Base 4U Rackmount "4E2" Chassis Model **4E3** = Base 4U Rackmount "4E3" Chassis Model **4H1** = Base 4U Rackmount "4H1" Chassis Model **4H2** = Base 4U Rackmount "4H2" Chassis Model **4P1** = Base 4U Rackmount "4P1" Chassis Model **4P2** = Base 4U Rackmount "4P2" Chassis Model **5E1** = Base 5U Rackmount "5E1" Chassis Model **5P1** = Base 5U Rackmount "5P1" Chassis Model **9E1** = Base 9U Rackmount "9E1" Chassis Model ME1 = Base Mobile "ME1" Chassis Model **MP1** = Base Mobile "MP1" Chassis Model MP2 = Base Mobile "MP2" Chassis Model **MP3** = Base Mobile Rugged "MP3" Chassis Model MP4 = Base Mobile Rugged "MP4" Chassis Model L17A = Base Laptop "L17A" Notebook Model

[Motherboard]:

- A56X1 = Base "A56X1" Standard ATX MB Model
- E56X1 = Base "E56X1" Extended ATX MB Model
- E56X2 = Base "E56X2" Extended ATX MB Model
- **E56X3** = Base "E56X3" Extended ATX MB Model
- H56X1 = Base "H56X1" Enhanced Extended ATX MB Model
- H56X2 = Base "H56X2" Enhanced Extended ATX MB Model
- **P1** = Base "P1" Passive Backplane MB Model
- P2 = Base "P2" Passive Backplane MB Model
- **P3** = Base "P3" Passive Backplane MB Model
- **P4** = Base "P4" Passive Backplane MB Model
- **S1** = Base "S1" Small Mobile Backplane MB Model
- S2 = Base "S2" Small Mobile Backplane MB Model
- S3 = Base "S3" Small Mobile Backplane MB Model
- S4 = Base "S4" Small Mobile Backplane MB Model
- **S5** = Base "S5" Small Mobile Backplane MB Model
- S6 = Base "S6" Small Mobile Backplane MB Model

ORDERING INFORMATION – DSS

DSS Part Number Format

[DSS Type] – [# of RAID Controllers] – [Drives] – [Chassis]

[DSS Type]:	[# of RAID Controllers]:	[Chassis]: Only Sp
IDSS = Internal Data Storage System	$\mathbf{1RB} = 1$ RAID Controller	$\mathbf{4T} = 4$ Drive Ba
EDSS = External Data Storage System	2RB = 2 RAID Controllers	$\mathbf{8T} = 8$ Drive Ba
		$\mathbf{AP} = \mathbf{A}$ Drive Ba

[*Drives*]: 3.5" SAS Hard Drive Models 3C1/4 = 3C1, 4 Drives, 2.0TB Volume 3C1/8 = 3C1, 8 Drives, 4.0TB Volume 3C1/12 = 3C1, 12 Drives, 6.0TB Volume 3C1/16 = 3C1, 16 Drives, 8.0TB Volume 3C1/24 = 3C1, 24 Drives, 12.0TB Volume 3C1/48 = 3C1, 48 Drives, 24.0TB Volume

3C2/4 = 3C2, 4 Drives, 4.0TB Volume **3C2/8** = 3C2, 8 Drives, 8.0TB Volume **3C2/12** = 3C2, 12 Drives, 12.0TB Volume **3C2/16** = 3C2, 16 Drives, 16.0TB Volume **3C2/24** = 3C2, 24 Drives, 24.0TB Volume **3C2/48** = 3C2, 48 Drives, 48.0TB Volume

3C3/4 = 3C3, 4 Drives, 8.0TB Volume **3C3/8** = 3C3, 8 Drives, 16.0TB Volume **3C3/12** = 3C3, 12 Drives, 24.0TB Volume **3C3/16** = 3C3, 16 Drives, 32.0TB Volume **3C3/24** = 3C3, 24 Drives, 48.0TB Volume **3C3/48** = 3C3, 48 Drives, 96.0TB Volume [*Drives*]: 2.5" SATA Hard Drive Models 2A1/4 = 2A1, 4 Drives, 2.0TB Volume 2A1/8 = 2A1, 8 Drives, 4.0TB Volume 2A1/12 = 2A1, 12 Drives, 6.0TB Volume 2A1/16 = 2A1, 16 Drives, 8.0TB Volume 2A1/24 = 2A1, 24 Drives, 12.0TB Volume 2A1/48 = 2A1, 48 Drives, 24.0TB Volume

Chassis]: Only Specify this option if [DSS Type] = EDSS.
4T = 4 Drive Bay External Tower Storage Chassis
8T = 8 Drive Bay External Tower Storage Chassis
4R = 4 Drive Bay 1U Rackmount Storage Chassis
12R = 12 Drive Bay 2U Rackmount Storage Chassis
16R = 16 Drive Bay 3U Rackmount Storage Chassis

[*Drives*]: 2.5" SATA Solid State Drive Models 2SC1/4 = 2SC1, 4 Drives, 800GB Volume 2SC1/8 = 2SC1, 8 Drives, 1.6TB Volume 2SC1/12 = 2SC1, 12 Drives, 2.4TB Volume 2SC1/16 = 2SC1, 16 Drives, 3.2TB Volume 2SC1/24 = 2SC1, 24 Drives, 4.8TB Volume 2SC1/48 = 2SC1, 48 Drives, 9.6TB Volume

2SC2/4 = 2SC2, 4 Drives, 1.6TB Volume **2SC2/8** = 2SC2, 8 Drives, 3.2TB Volume **2SC2/12** = 2SC2, 12 Drives, 4.8TB Volume **2SC2/16** = 2SC2, 16 Drives, 6.4TB Volume **2SC2/24** = 2SC2, 24 Drives, 9.6TB Volume **2SC2/48** = 2SC2, 48 Drives, 19.2TB Volume

ORDERING INFORMATION - IC2000 OPTIONAL COMPONENTS

All IC2000 models can be ordered with the following optional components where applicable.

CPU Options for Active ".56X." Series MBs

Option Part #	Option Description
APX56A2	Add 2 nd Xeon X56 6-Core 2.66GHz
APX56B1	Upgrade to 1 Xeon X56 6-Core 2.80GHz
APX56B2	Upgrade to 2 Xeon X56 6-Core 2.80GHz
APX56C1	Upgrade to 1 Xeon X56 6-Core 2.93GHz
APX56C2	Upgrade to 2 Xeon X56 6-Core 2.93GHz
APX56D1	Upgrade to 1 Xeon X56 6-Core 3.33GHz
APX56D2	Upgrade to 2 Xeon X56 6-Core 3.33GHz

RAM Options for Active ".56X." Series MBs

Note: Refer to specific ".56X." Series Motherboard Model for maximum number of possible RAM DIMM modules. Each group of RAM banks requires CPU installation for memory controller.

Option Part #	Option Description
ARX56A06	Upgrade to 12GB RAM (6 x 2GB DIMMs)
ARX56A09	Upgrade to 18GB RAM (9 x 2GB DIMMs)
ARX56A12	Upgrade to 24GB RAM (12 x 2GB DIMMs)
ARX56A18	Upgrade to 36GB RAM (18 x 2GB DIMMs)
ARX56B03	Upgrade to 12GB RAM (3 x 4GB DIMMs)
ARX56B06	Upgrade to 24GB RAM (6 x 4GB DIMMs)
ARX56B09	Upgrade to 36GB RAM (9 x 4GB DIMMs)
ARX56B12	Upgrade to 48GB RAM (12 x 4GB DIMMs)
ARX56B18	Upgrade to 72GB RAM (18 x 4GB DIMMs)
ARX56C03	Upgrade to 24GB RAM (3 x 8GB DIMMs)
ARX56C06	Upgrade to 48GB RAM (6 x 8GB DIMMs)
ARX56C09	Upgrade to 72GB RAM (9 x 8GB DIMMs)
ARX56C12	Upgrade to 96GB RAM (12 x 8GB DIMMs)
ARX56C18	Upgrade to 144GB RAM (18 x 8GB DIMMs)

Video Card Option for Motherboards A56X1 / E56X1 / E56X2 / H56X1 / H56X2 / P1 / P2 / P3 / P4 / S2 / S3 / S4 / S5 / S6

Option Part #	Option Description
A5570	Add ATI Radeon HD 5570 PCIe 2.0 x16 Video
	Card with 1GB RAM

USB Audio Option

Option Part #	Option Description	
CXFIG	Add Creative Labs Sound Blaster X-Fi Go USB Audio with Microphone In (1/8" mini jack) and Headphone Out (1/8" mini jack) ports	

Blu-Ray DVD Drive Options

Note: Please refer to chassis series model for drive form factor compatibility.

Option Part #	Option Description
BR	Blu-Ray Burner, 5.25" Black Internal, SATA/150
	Interface, Supports 10X BD-R, 8X BD-R DL, 2X
	BD-RE, 2X BD-RE DL, 10X BD-ROM, 16X
	DVD±R, 8X DVD±R DL, 8X DVD+RW, 6X
	DVD-RW, 12X DVD-RAM, 16X DVD-ROM,
	48X CD-R, 24X CD-RW, 48X CD-ROM
BRS	Blu-Ray Burner, Slim Black Internal, SATA/150
	Interface, Supports 6X BD-R, 4X BD-R DL, 2X
	BD-RE, 2X BD-RE DL, 6X BD-ROM, 8X
	DVD±R, 4X DVD±R DL, 8X DVD+RW, 6X
	DVD-RW, 5X DVD-RAM, 8X DVD-ROM, 24X
	CD-R, 10X CD-RW, 24X CD-ROM

CPU Options for Passive "P" Series MBs

Option Part #	Option Description
PPA2	Add 2 nd Xeon X54 Quad Core 2.00GHz
PPB1	Upgrade to 1 Xeon X54 Quad Core 2.33GHz
PPB2	Upgrade to 2 Xeon X54 Quad Core 2.33GHz
PPC1	Upgrade to 1 Xeon X54 Quad Core 2.83GHz
PPC2	Upgrade to 2 Xeon X54 Quad Core 2.83GHz

RAM Options for Passive "P" Series MBs

Option Part #	Option Description
PRB04	Upgrade to 16GB RAM (4 x 4GB DIMMs)

CPU Options for Mobile "S" Series MBs

Option Part #	Option Description
SPA2	Add 2 nd Xeon X54 Quad Core 2.00GHz
SPB1	Upgrade to 1 Xeon X54 Quad Core 2.50
SPB2	Upgrade to 2 Xeon X54 Quad Core 2.50GHz

RAM Options for Mobile "S" Series MBs

Option Part #	Option Description
SRB04	Upgrade to 16GB RAM (4 x 4GB DIMMs)

Hard Drive Dock Option

Option Part #	Option Description
EHDC3	Add 5.25" Dock Bay for 3.5" Based SATA Hard
	Drives (Drive not included)

IDSS/EDSS Spare or Replacement Drives

Option Part #	Option Description
3B1	3.5" – SATA 500GB Drive
3B2	3.5" – SATA 1TB Drive
3B3	3.5" – SATA 2TB Drive
3C1	3.5" – SAS 500GB Drive
3C2	3.5" – SAS 1TB Drive
3C3	3.5" – SAS 2TB Drive
2A1	2.5" – SATA 500GB Drive
2SC1	2.5" – SATA 200GB Solid State Drive
2SC2	2.5" – SATA 400GB Solid State Drive

ORDERING INFORMATION - IC2000 OPTIONAL COMPONENTS

Operating System Options

Option Part #	Option Description
7P32	Microsoft Windows 7 Professional – 32-bit
7U32	Microsoft Windows 7 Ultimate – 32-bit
7U64	Microsoft Windows 7 Ultimate – 64-bit
SR64	Microsoft Server 2008 R2 Standard Edition – 64-bit
REW6	Red Hat Enterprise Linux Workstation 6

Additional Software Options

Option Part #	Option Description
OP10	Microsoft Office 2010 Professional Edition
VS10	Microsoft Visual Studio 2010 Professional Edition

Monitor Options



Option Part #	Option Description
D19	Desktop 19" LCD, 1280x1024 max resolution
D19W	Desktop 19" LCD Widescreen, 1280x1024 max resolution
D20W	Desktop 20" LCD Widescreen, 1680x1050 max resolution
D22W	Desktop 22" LCD Widescreen, 1680x1050 max resolution
D24W	Desktop 24" LCD Widescreen, 1900x1280 max resolution
D27W	Desktop 27" LCD Widescreen, 1920x1200 max resolution
D30W	Desktop 30" LCD Widescreen, 2560x1600 max resolution
R15	Rackmount 1U 15" LCD with Keyboard/Trackpad,
	1024x768 max resolution
R15M	Rackmount 1U 15" LCD with Keyboard/Standard Mouse,
	1024x768 max resolution
R15K	Rackmount 1U 15" LCD with Keyboard/Trackpad,
	1024x768 max resolution, with 8-port KVM Switch
R17	Rackmount 1U 17" LCD with Keyboard/Trackpad,
	1280x1024 max resolution
R17M	Rackmount 1U 17" LCD with Keyboard/Standard Mouse,
	1280x1024 max resoultion
R17K	Rackmount 1U 17" LCD with Keyboard/Trackpad,
	1280x1024 max resolution, with 8-port KVM Switch
R19	Rackmount 1U 19" LCD with Keyboard/Trackpad,
	1280x1024 max resolution
R19K	Rackmount 1U 17" LCD with Keyboard/Trackpad,
	1280x1024 max resolution, with 8-port KVM Switch

ORDERING INFORMATION - OPTIONAL CARTS AND CABINETS

Tower Mobile Cart

With four independently adjustable components, the Tower Chassis Cart provides all the functionality of a stationary desk, with the versatility of a mobile cart. Each component can be independently adjusted for height.

Option Part #	Option Description	
TMC	Tower Chassis Cart, Includes:	
	 Pole Mount LCD Monitor Arm 	
	 Base Storage Tray 	
	• Push Handle	
	 Keyboard\Mouse Tray 	
	 Tower PC Holder 	141
	•19" Width x 24" Deep	
	 Adjustable Height from 	0.0
	34.75"-51.75"	
TMH	Add Additional Tower PC Holder	
TMB	Add Additional Tower Base Tray	100
TMS	Add Tower Shelf Tray	



Rackmount Mobile Open Cabinets

The rackmount mobile open cabinets provide simplicity with mobility. The sturdy steel frame construction enforces stability and durability, handling up to a 750 pound load. Steel iron castors come standard to easily move to any location. The open frame rack has higher thermal manageability by room or central air conditioning. These units support industry standards ANSI/EIA, RS-310D, DIN41491, PART1, IEC297-2, PART7, and GB/T3047.2-92.



Option Part #	Option Description
OC15	15U - 22.13"W x 34.60"H x 30.60"D - 55.13 lbs
OC22	22U - 22.13"W x 46.25"H x 30.60"D - 60.64 lbs
OC36	36U - 22.13"W x 70.50"H x 30.60"D - 76.07 lbs
OC45	45U - 22.13"W x 86.50"H x 30.60"D - 87.73 lbs
HRS1	1U Fixed Shelf Unit Max. 130 lb Load
HST1	1U Sliding Shelf Unit Max. 44.1 lb Load
KBD1	1U Sliding Keyboard Drawer

Rackmount Mobile Enclosed Cabinets

The rackmount mobile enclosed cabinets are built with highquality aluminum/steel structures capable of handling up to a 1,700 pound load. Vented doors and cooling fans provide excellent air circulation and these cabinets have an easy cabling management system that can route cables front-to-back and top-to-bottom. The cabinets are completely lockable from the front/rear doors and side panels to prevent unauthorized access. Steel iron castors come standard to easily move to any location. These units support industry standards ANSI/ELA, RS-310-D, IEC297-2.



Option Part #	Option Description
EC15	15U - 23.50"W x 35.25"H x 39.50"D - 180 lbs
EC22	22U - 23.50"W x 47.75"H x 39.50"D - 215 lbs
EC36	36U - 23.50"W x 71.75"H x 39.50"D - 235 lbs
EC42	42U - 23.50"W x 82.50"H x 39.50"D - 285 lbs
CF12	Cabinet 120mm AC Cooling Fans
DT1U	1U Digital Temperature
HRS2	1U Fixed Shelf Unit Max. 130 lb Load
HST2	1U Sliding Shelf Unit Max. 44.1 lb Load
KBD2	1U Sliding Keyboard Drawer

Common Open/Enclosed Cabinet Options

Option Part #	Option Description
CM1U	1U Cable Management Rack Kit
CM2U	2U Cable Management Rack Kit
FC1U	1U Front Cover Plate
FC2U	2U Front Cover Plate
FC3U	3U Front Cover Plate
PS10	10 Outlet Surge Protection Power Strip
PS12	12 Outlet Surge Protection Power Strip
PS22	22 Outlet Surge Protection Power Strip (OC36/OC45/ EC36/EC42)
PS36	36 Outlet Surge Protection Power Strip (OC45/EC42)

ORDERING INFORMATION – CUSTOM CONFIGURATIONS & INFO

Custom Configurations

To order custom configurations of the IC2000 and DSS systems for any desired items not covered in this specification, add the following alpha designator to the end of the IC2000 or DSS order part number:

 $-\mathbf{C} =$ Indicates custom items to be added to system.

Contact Signatec for availability and pricing for custom configurations. Customer purchase orders must then list detailed custom configuration items and pricing as detailed by Signatec once established

Warranty Information

The IC2000 and DSS products carry a 12-month warranty. During the warranty period, Signatec will repair any defective product at no cost to the customer. This warranty does not cover customer misuse or physical damage not reported within 15 days of the time of shipment by Signatec. Extended warranties are available for an additional cost; please contact Signatec Sales for further details.

Return Policy

The IC2000 and DSS products are custom made-to-order products and therefore Signatec does not accept returns of IC2000 and DSS systems. All IC2000 and DSS sales are final.

Signatec is not responsible for IC2000 and DSS systems that have been ordered by the customer with a wrong configuration/option specified by the customer; in which case, additional charges may apply in order to re-configure the system with the desired correct changes.

Notes

1. Signatec reserves the right to make changes in this specification at any time without notice. The information furnished herein is believed to be accurate, however, no responsibility is assumed for its use.

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