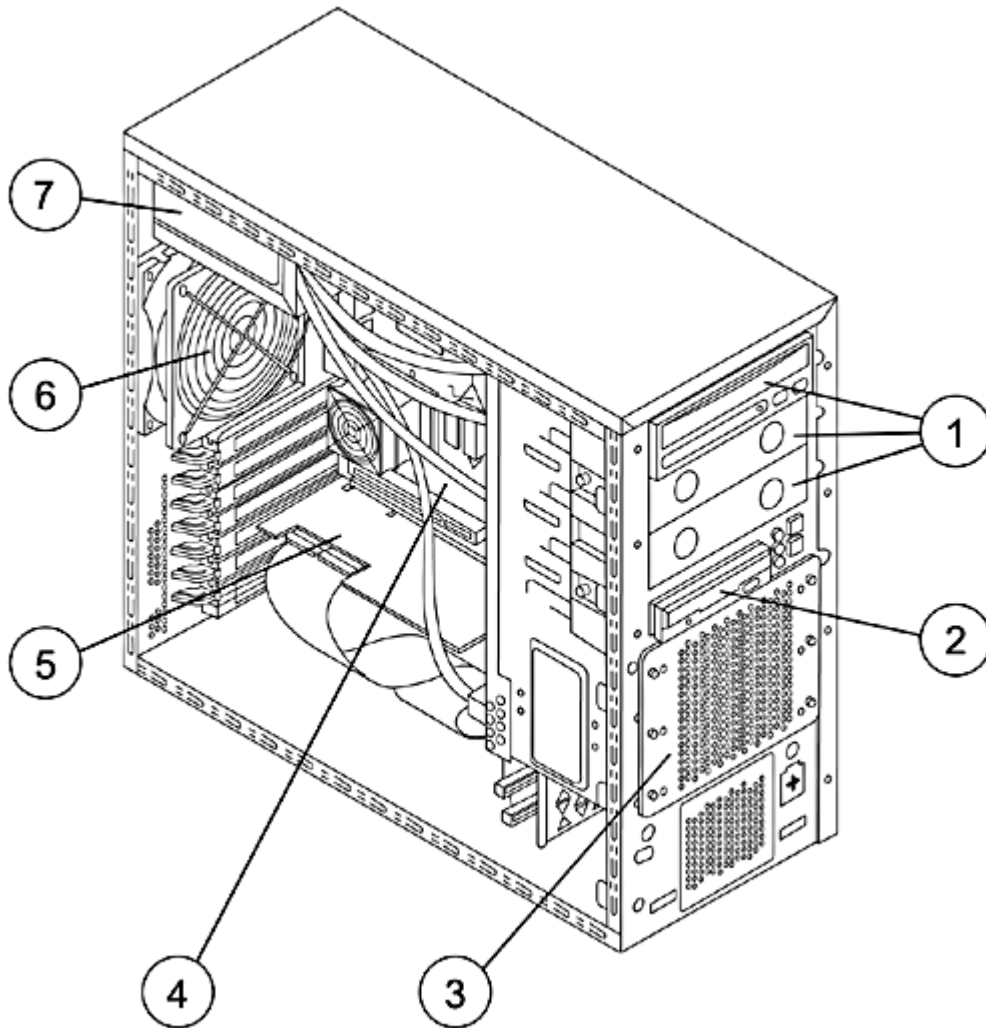


Overview



- 1. 48x CD-ROM & Two Removable Media Bays
- 2. 1.44 MB Diskette Drive
- 3. Four 1" Non-Hot Plug Drive Bays
- 4. Main System Board

- 5. Optional SCSI Controller
- 6. System Fan
- 7. Power Supply

Overview

What's New

- Supports 1 Intel Pentium 3.20 GHz processor supporting Hyperthreading technology with 1024-KB second level ECC cache standard 800MHz front-side-bus
- SATA Model: Intel® Pentium® 3.00 GHz processor, 4 port SATA RAID controller, and Standard 4 x 1" Wide SATA Hot Plug Drive Cage
- Supports 1 Intel Celeron® 2.60 GHz, processor with 128-KB second level ECC cache standard, 400MHz front-side-bus
- Supports 1 Intel Pentium 2.80 GHz processor supporting Hyperthreading technology with 1024-KB second level ECC cache standard 800MHz front-side-bus
- Supports 1 Intel Pentium 3.00 GHz processor supporting Hyperthreading technology with 1024-KB second level ECC cache standard 800MHz front-side-bus

At A Glance

- Intel E7210 (875P) Chipset with 400Mhz FSB (Celeron Models) and 800Mhz FSB (Pentium 4)
- 256-MB or 512-MB (Pentium 4n models) of PC3200 DDR SDRAM running at 400MHz, with Advanced unbuffered ECC capabilities standard, expandable to 4 GB
- Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
- Integrated Dual Channel Ultra ATA/133 Adapter (ATA Models) or a Single Channel Wide Ultra320 SCSI Adapter (SCSI Models)
- Support for up to four 1" Ultra320 NHP SCSI hard drives or three 1" ATA/100 NHP Drives or four 1" hot plug SATA HDD, (depending on Model & Accessories)
- Five total PCI slots (5 available on ATA models, 4 available on SCSI models, 4 available on SATA model): three 64-bit/66MHzPCI-X at 3.3 Volt and two 32-bit/33MHz PCI at 5 Volt
- Internal storage capacity of up to 288 GB (4 x 72GB non-hot plug 1" SCSI HDD) (SCSI Models)
- Internal storage capacity of up to 480 GB (3 x 160 GB 1" ATA/100 drives - 4th channel is attached to CD-ROM Drive) (ATA Models)
- Internal storage capacity of up to 1TB (4 x 250GB hot plug 1" SATA HDD) (SATA Model)
- Integrated ATI Rage XL with 8MB SDRAM video
- 350W Power Supply
- Two USB 2.0 ports
- ROM Based Setup Utility (RBSU) and PXE support
- Protected by HP Services, including a one-year, limited warranty, Next Business Day 1 year on-site limited Global warranty - Certain restrictions and exclusions apply.



Standard Features

Processor <i>One of the following depending on Model</i>	Intel Pentium 4 processor 3.20 GHz supporting HyperThreading technology, 800 MHz Front Side Bus Intel Pentium 4 processor 3.00 GHz supporting HyperThreading technology, 800 MHz Front Side Bus Intel Pentium 4 processor 2.80 GHz supporting HyperThreading technology, 800 MHz Front Side Bus Intel Celeron processor 2.6 GHz, 400 MHz Front Side Bus
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Cache Memory <i>One of the following depending on Model</i>	Integrated 1024-KB Level 2 ECC cache (Pentium 4 models only) Integrated 128-KB Level 2 ECC cache (Celeron models only)
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Memory Protection	Advanced unbuffered ECC capabilities
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Memory <i>One of the following depending on Model</i>	Type	PC3200 DDR SDRAM running at 400MHz
	Standard	256 MB
	Maximum	4 GB
	Standard	512 MB (Pentium 4 SBS models)
	Maximum	4 GB

Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
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Expansion Slots	Slot#	Bus Speed	Hot Plug	Voltage	Notes
			Y/N	Connector	
	2	32bit/33MHz PCI	No	5 Volt	Full Length / Full Height
	3	64bit/100MHz PCI	No	3.3V	Full Length / Full Height

NOTE: For more information regarding PCI-X, please see the following URL:

<http://www.hp.com/servers/pci-x>

NOTE: All slots can accept universal keyed PCI cards.

Storage Controller <i>One of the following depending on Model</i>	HP Single Channel Ultra320 SCSI Adapter (SCSI Models) Integrated Dual Channel Ultra ATA-133 IDE (ATA Models) 4 port SATA RAID controller (SATA Model)
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Standard Features

Storage	Diskette Drives	1.44 MB
	CD-ROM	48x IDE (ATAPI) CD-ROM Drive
	Hard Drives	One of the following: <ul style="list-style-type: none">• 36.4-GB Ultra320 SCSI 10,000 rpm 1" Drive (SCSI models)• 40-GB ATA/100 7200 rpm 1" Drive (ATA Models)• 80-GB ATA/100 7200 rpm 1" Drive (ATA Models)• SATA model: This model is not preconfigured with a specific SATA Drive. Customer must make a SATA drive selection upon purchase. ILP price does not include drive.
	Maximum Internal Storage (SCSI Models)	288 GB Internal Drive Cage Maximum SCSI capacity (4 x 72GB)
Maximum Internal Storage (ATA Models)	480 GB (3 x 160 GB) (internal drive bays and removable media bays) For larger internal storage requirements, please contact your local HP representative by calling 1-800-888-9909.	
Maximum Internal Storage (SATA Model)	1 TB Internal Drive Cage Maximum SATA capacity (4 x 250GB)	

Interfaces	Parallel	1
	Serial	1
	Pointing Device (Mouse, PS2)	1
	Graphics	1
	Keyboard (PS2)	1
	USB	2
	Network RJ-45 (Ethernet)	1

NOTE: Please see the following URL for additional information regarding USB support:
<http://h18004.www1.hp.com/products/servers/platforms/usb-support.html>.

Graphics	Integrated ATI RAGE XL Video Controller with 8MB SDRAM Video Memory
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Form Factor	Tower (5U)
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Industry Standard Compliance	ACPI V1.0b Compliant
	PCI 2.2 Compliant
	PXE Support
	WOL Support
	Microsoft® Logo certifications
	Novell Logo certifications



Standard Features

Manageability	Offline Version - "floppy-based" method to flash the rom BIOS Serial Console
Security	Power-on password Setup password Diskette boot control Intruder Alert Message
Server Power Cords	One Lowline NEMA power cord and one Highline IEC Power cord ships standard
Power Supply	350 Watts, PFC (Power Factor Correcting)
System Fans	1 - Non-hot plug, Non-redundant system fan shipped standard 1 - Non-hot plug, Non-redundant CPU heatsink fan shipped standard
OS Support	Microsoft Windows® 2000 Server Microsoft Windows Server 2003 Microsoft Windows Small Business Server 2003 Novell NetWare 6.5 Novell NetWare 6.0 Novell NetWare 5.1 Novell NetWare SBS 6.5 Red Hat Linux 9 Red Hat Enterprise Linux 2.1 NOTE: For an up-to-date listing of the latest ML110 OS support matrix, please see: http://www.hp.com/go/supportos NOTE: For an up-to-date listing of the latest drivers available for the HP server ML110, please see: http://h18023.www1.hp.com/support/files/server/us/family/model/5769.html?lang=en&cc=us
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA3000 & EVA5000, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific model please contact your sales representative or go to http://www.hp.com/go/factory-express



Standard Features

Service and Support

One-year limited warranty, including hardware diagnostic support, coverage of hard drives, memory and processor. The warranty is fully supported by HP Services and a worldwide network of resellers and service providers. In addition 90-day's getting started software telephone support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services.

NOTE: Limited warranty includes 1 year parts, 1 year labor, 1-year on-site support

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMWare-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

HP Care Pack Services include HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the enclosure, as well as 22" and smaller external monitors and tower UPS options up to 3KVA. 22" and smaller external monitors will be covered at the same service level and coverage period as the server. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

NOTE: For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at: <http://www.hp.com/hps/carepack>

NOTE: For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

NOTE: Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>



Models

ML110 C2.6-128KB 256MB, 40GB, ATA 339042-001	Processor	(1) Intel Celeron 2.6GHz (standard)
	Cache Memory	Integrated 128-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 200MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	Ultra ATA 100
	Hard Drive	(1) 40 GB Ultra ATA/100
	Internal Storage	480 GB maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)

ML110 P3.00 -1024KB 256MB, 80GB, ATA 359661-001	Processor	(1) Intel Pentium 4 3.00 GHz supporting HyperThreading technology(standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	Ultra ATA 100
	Hard Drive	(1) 80 GB Ultra ATA/100
	Internal Storage	480 GB maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)

ML110 P3.00-1024KB 256MB, 36GB, SCSI 359663-001	Processor	(1) Intel Pentium 4 3.00 GHz supporting HyperThreading technology(standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	HP Single Channel Ultra320 SCSI Adapter)
	Hard Drive	(1) 36.4 GB Ultra320 SCSI, 10,000 rpm,1" Drive
	SCSI Cable	2 drop internal SCSI cable
	Internal Storage	288 GB maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
Form Factor	Tower (5U)	



Models

ML110 P3.00-1024KB, 512MB, 36GB SCSI, w/SBS Pre-Install 359664-001	Processor	(1) Intel Pentium 4 3.00 GHz supporting HyperThreading Technology
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	512 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC Capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	HP Single Channel Ultra320 SCSI Adapter
	Hard Drive	(1) 36.4 GB Ultra320 SCSI 10,000 rpm, 1" Drive
	SCSI Cable	2 drop internal SCSI cable
	Internal Storage	288 GB Maximum (with optional drives)
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)
NOS	Microsoft Windows Small Business Server 2003 + 5 CALs standard (pre-installed)	

ML110 P3.00 -1024KB 256MB, SATA 344268-001	Processor	(1) Intel Pentium 4 3.00 GHz supporting HyperThreading technology (standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	4 port SATA RAID Controller
	Hard Drive	None ship standard
	SATA Cable	4 SATA cables
	Internal Storage	1 TB Maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)

ML110 P3.20 -1024KB 256MB, 80GB, ATA 366882-001	Processor	(1) Intel Pentium 4 3.20 GHz supporting HyperThreading technology (standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	Ultra ATA 100
	Hard Drive	(1) 80 GB Ultra ATA/100
	Internal Storage	480 GB maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)



Models

ML110 P3.20-1024KB 256MB, 36GB, SCSI 366884-001	Processor	(1) Intel Pentium 4 3.20 GHz supporting HyperThreading technology (standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	256 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	HP Single Channel Ultra320 SCSI Adapter
	Hard Drive	(1) 36.4 GB Ultra320 SCSI, 10,000 rpm, 1" Drive
	SCSI Cable	2 drop internal SCSI cable
	Internal Storage	288 GB maximum
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)
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ML110 P3.20-1024KB, 512MB, 36GB SCSI, w/SBS Pre-Install 366883-001	Processor	(1) Intel Pentium 4 3.20 GHz supporting HyperThreading technology (standard)
	Cache Memory	Integrated 1024-KB Level 2 cache
	Memory	512 MB (Standard) to 4 GB (Maximum) PC3200 DDR SDRAM DIMM Memory running at 400MHz, with Advanced ECC Capabilities
	Network Controller	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)
	Storage Controller	HP Single Channel Ultra320 SCSI Adapter
	Hard Drive	(1) 36.4 GB Ultra320 SCSI, 10,000 rpm, 1" Drive
	SCSI Cable	2 drop internal SCSI cable
	Internal Storage	288 GB Maximum (with optional drives)
	Optical Drive	48x IDE (ATAPI) CD-ROM Drive
	Form Factor	Tower (5U)
NOS	Microsoft Windows Small Business Server 2003 + 5 CALs standard (pre-installed)	



Configuration Information-Factory Integrated Models

NOTE: HP does not allow factory integration of options into standard models listed above.

Configure-to-order servers must start with a CTO Chassis.

NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.

Step 1: Base Configuration

Models	HP ProLiant ML110 Tower Chassis	360704-405
	Factory Integrated Models ship with:	
	Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)	
	Ultra ATA 100	
	1.44MB Floppy Drive	
	350 Watts, PFC (Power Factor Correcting)	
	Tower 5U Form Factor	
	NOTE: Keyboard and mouse included	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	Celeron Processor 2.6-GHz/400 MHz Front Side Bus, Factory Integration only	359090-L21
	Pentium Processor 3.00-GHz/ 800 MHz Front Side Bus, Factory Integration only	359699-L21
	Pentium Processor 3.20-GHz/ 800 MHz Front Side Bus, Factory Integration only	366886-L21

Base Memory	256MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 256 MB)	354557-B21
	512MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB)	354560-B21
	1024MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024MB)	354563-B21

Base Hard Drives	Ultra320 SCSI - Non-Hot Plug	
	36.4-GB U320 SCSI 10,000 rpm, Non-Hot Plug Drive, 1"	271832-B21
	72.8 GB, U320 10,000 rpm, Non-Hot Plug Hard Drive, 1"	332751-B21
	NOTE: Must also select the U320 SCSI HBA Base (358700-B21) if choosing SCSI drive.	
	146.8-GB 10,000 rpm, U320 Non-Hot Plug Hard Drive (1")	356990-B21
	36.4GB 15,000 rpm, U320 Non-Hot Plug Hard Drive (1")	357012-B21
	ATA 100 - Non-Hot Plug (ATA Models only)	
	40-GB ATA 100 7,200 RPM Hard Drive (1")	230534-B21
	80-GB ATA 100 7,200 RPM Hard Drive (1")	278424-B21
	160-GB ATA 100 7,200 RPM Hard Drive (1")	366486-B21
	NOTE: If 2.6GHz processor chosen, 40GB (230534-B21) is default first HDD. If customer prefers first HDD to be 80GB, choose 278424-B21; if 2.8GHz or higher processor chosen, 80GB (278424-B21) is default first HDD. If customer prefers first HDD to be 40GB, choose 230534-B21	
	Serial-ATA (SATA) Hard Drive (SATA Models Only)	



Configuration Information-Factory Integrated Models

80-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349237-B21
160-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349238-B21
250-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349239-B21
NOTE: Must also select the SATA Hardware Kit (370530-B21) if choosing SATA drive	

Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	HP ProLiant 16X DVD-ROM Drive	217053-B21
	HP ProLiant 48X CD w/SCREWS	337863-B21
	HP DVD+R/RW 16X Half Height	383974-B21

Step 3: Choose Additional Factory Integratable Options

Controller	HP ML110 U320 SCSI FIO HBA ALL	358700-B21
NOTE: Must select if SCSI hard drives are chosen in step 2.		

Hardware Kit	SATA HW ML110 NSF ALL	370530-B21
NOTE: Must select if SATA hard drives are chosen in Step 2.		

Operating Systems	Microsoft Windows2003 SBS Standard Edition, Pre-install	355383-B22
	Microsoft Windows2003 SBS PRM, Pre-install	366914-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.



Options

NOTE: Some options may not be factory integratable. Please contact your local sales representative for additional information.

ProLiant Essentials Value Pack Software	ProLiant Essentials Intelligent Networking Pack (1 License)	372906-B21
	ProLiant Essentials Intelligent Networking Pack Flex License	372950-B21
	ProLiant Essentials Intelligent Networking Pack Track License	372951-B21

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

Memory	1024MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024 MB)	354563-B21
	512MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB)	354560-B21
	256MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 256 MB)	354557-B21

Optical Drives	CD-RW/DVD-ROM Combo Drive Option Kit	331346-B21
	16X DVD-ROM Option, Carbon	217053-B21
	HP DVD+R/RW 16x Half Height	383974-B21

Hard Drives	Ultra320 SCSI - Non-Hot Plug	
	NOTE: These drives require an additional SCSI controller in ATA models.	
	36.4GB 10,000 rpm, U320 Non-Hot Plug Hard Drive (1")	271832-B21
	72.8GB 10,000 rpm, U320 Non-Hot Plug Hard Drive (1")	332751-B21
	146.8-GB 10,000 rpm, U320 Non-Hot Plug Hard Drive (1")	356990-B21
	36.4GB 15,000 rpm, U320 Non-Hot Plug Hard Drive (1")	357012-B21
	ATA 100 - Non-Hot Plug (ATA Models only)	
	40-GB ATA/100 7,200 rpm Non-Hot Plug Drive (1")	230534-B21
	80-GB ATA/100 7,200 rpm Non-Hot Plug Drive (1")	278424-B21
	160GB ATA/100 7,200 rpm Non-Hot Plug Drive (1")	366486-B21
	Serial-ATA (SATA) Hard Drive (SATA Models Only)	
	80-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349237-B21
	160-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349238-B21
	250-GB SATA 1.5Gb 7,200 RPM Hard Drive (1")	349239-B21

HP External 160GB HDD	HP External Backup Solution by Seagate	372914-001
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Storage Controllers - SCSI Drives	NOTE: The following Storage Controllers are qualified for SCSI drives only. They do not support the ATA Drives.	
	Adaptec PCI SCSI RAID controller	355671-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA	365289-B21
	64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21



Options

Communications	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	HP NC1020 PCI 1000T Gigabit Server Adapter	353377-B21
	Agere PCI V.92 56K Worldwide Controller less Win Modem	DC131B
	NOTE: RJ11 modem adapter is not included.	
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Tape Backup Drives	HP DAT24 Internal SCSI DAT Drive	C1555D
	HP DAT40 Internal SCSI DAT Drive	C5686B
	HP DAT72 Internal SCSI DAT Drive	Q1522A
	NOTE: When installing a DAT24i, DAT40i or DAT72i in a ML110 ATA model a SCSI controller kit will be required (PN: 365289-B21).	
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Rack Enabling Kit	ProLiant Rack Enabling Kit	238547-B22
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HP KVM Switch Options	HP 1x4 USB/PS2 KVM TableTop Switch	371301-D71
	HP 1x4 USB/PS2 KVM Rack-mount Switch	371302-B21
	HP 6 foot, 2-Pack, PS2 with audio KVM Cable	371730-B21
	HP 6 foot, 2-Pack, USB with audio KVM Cable	371729-B21
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Other	Internal SCSI Cable Option Kit, 4 drops - To be used when adding additional hard disk drives or a tape back-up drive.	166389-B21
	Internal SCSI Cable Option Kit, 2 drops - To be used when adding additional hard drives or a tape back-up drive.	273463-B21



Service and Support, HP Care Pack, and Warranty Information

Service and Support Offerings (HP Care Pack Services)	Hardware Services 4-Hour On-site Service	
	13-Hour x 5-Day Coverage, 3 Years	U4434A
	13-Hour x 5-Day Coverage, 3 Years, Electronic	U4434E
	24-Hour x 7-Day Coverage, 3 Years	U4435A
	24-Hour x 7-Day Coverage, 3 Years, Electronic	U4435E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years,	U4433A
	9-Hour x 5-Day Coverage, 3 Years, Electronic	U4433E
	Hardware Installation	U4444A
	Hardware Installation, Electronic	U4444E

NOTE: For more information, customer/resellers can contact <http://www.hp.com/services/carepack>.



Tested Product List

NOTE: The Tested Product List (TPL) is a list of HP and standard 3rd party devices (hardware or software) that have been tested by either HP or independent test houses for basic compatibility with the HP ProLiant ML110. HP products are supported by HP, non-HP products are not supported by HP. For non-HP products, you must obtain support from their own manufacturer. Non-HP third party products have been tested only for compatibility with the specified HP server. This level of testing confirms proper device recognition by the HP server and basic compatibility with the identified HP server. HP disclaims all responsibility and liability for the manufacturing, distribution, marketing, licensing, installation, use, performance, maintenance, safety, regulatory certification, and support of these 3rd party products.

IDE RAID Controller	Manufacturer	Promise Technology, Inc.
	Product	FastTrak TX4000 IDE RAID Controller
	Channels	Four (4) Independent Data Channels
	RAID Configurations	RAID levels 0 + 1 striping/mirroring; RAID 1 mirroring; RAID 0 striping
	Capacity	240GB (3 x 80GB ATA) in ML110
	Data Transfer Method	32-bit, 66MHz PCI Bus Master
	Manufacturer's Website	http://www.promise.com/



Memory

HP ProLiant ML110 Celeron and Pentium 4 Models

Standard Memory

256-MB of PC3200 DDR SDRAM running at 400MHz (Celeron models running at 200 MHz), with Advanced ECC capabilities Memory installed (1 x 256-MB SDRAM DIMM).

Standard Memory Plus Optional Memory

Up to 3328-MB memory is available with the optional installation of PC3200 ECC DDR SDRAM DIMM Memory kits.

Standard Memory Replaced with Optional Memory

Up to 4096-MB of memory is available with the removal of the standard 256-MB of memory and the optional installation of PC3200 ECC DDR SDRAM DIMM Memory kits.

NOTE: Charts do not represent all possible memory configurations.

Memory		Slot			
		4	3	2	1
Standard	256 MB	Empty	Empty	Empty	256 MB
Optional	3328 MB	1024 MB	1024 MB	1024 MB	256 MB
Maximum	4096 MB	1024 MB	1024 MB	1024 MB	1024 MB

Following are memory options available from HP:

- 256MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 256 MB) 354557 -B21
- 512MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 354560 -B21
- 1024MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 354563 -B21

HP server ML110 Pentium 4 SBS Models

Standard Memory

512-MB of PC3200 DDR SDRAM running at 400MHz, with Advanced ECC capabilities Memory installed (1 x 512-MB SDRAM DIMM).

Standard Memory Plus Optional Memory

Up to 3584-MB memory is available with the optional installation of PC3200 ECC DDR SDRAM DIMM Memory kits.

Standard Memory Replaced with Optional Memory

Up to 4096-MB of memory is available with the removal of the standard 512-MB of memory and the optional installation of PC3200 ECC DDR SDRAM DIMM Memory kits.

NOTE: Charts do not represent all possible memory configurations.

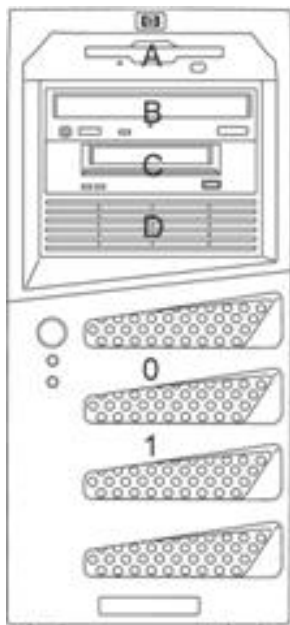
Memory		Slot			
		4	3	2	1
Standard	512 MB	Empty	Empty	Empty	512 MB
Optional	3584 MB	1024 MB	1024 MB	1024 MB	512 MB
Maximum	4096 MB	1024 MB	1024 MB	1024 MB	1024 MB

Following are memory options available from HP:

- 256MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 256 MB) 354557 -B21
- 512MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 512 MB) 354560 -B21
- 1024MB of Advanced ECC PC3200 DDR SDRAM DIMM Memory Kit (1 x 1024 MB) 354563 -B21



Storage



- A 48x IDE (ATAPI) CD-ROM
- D 1.44 Diskette Drive
- B, C Removable Media Bays (1.6" each)
- 0, 1, 2, 3 Four 1" Non-Hot Plug Drive Bays, or Four Hot Plug Drive Bays (SATA model only)

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Up to 1	E	Integrated
IDE (ATAPI) CD-ROM Drive	Up to 2	B or C	Integrated IDE (ATAPI)
DVD-ROM Drive Option Kit	Up to 2	B or C	Integrated IDE (ATAPI)

Hard Drives (SCSI Models only)

Ultra 320 SCSI - Non-Hot Plug

	Quantity Supported	Position Supported	Controller
1-inch 36.4-GB 72.8-GB	Up to 4	0, 1, 2 or 3	HP Single Channel Ultra3 SCSI Adapter (SCSI Models)

Storage

Hard Drives (ATA Models only)

ATA/100 IDE - Non-Hot Plug

	Quantity Supported	Position Supported	Controller
<u>1-inch</u> 160.0-GB 80.0-GB 40.0-GB	Up to 3	0, 1, 2 or 3	Integrated Dual Channel Ultra ATA-100 Adapter (ATA Models)

Hard Drives (SATA Models only)

SATA 1.5Gb - Hot Plug

	Quantity Supported	Position Supported	Controller
<u>1-inch</u> 80.0-GB 160.0-GB 250.0-GB	Up to 4	0, 1, 2 or 3	4 Port SATA RAID Controller (SATA Model)

Maximum Storage Capacity - SCSI Models

Internal	288 GB (4 x 72 GB non-hot-plug hard drives)
Total	288 GB

Maximum Storage Capacity - ATA Models

Internal	480 GB (3 x 160 GB non-hot-plug hard drives - 4th channel is attached to CD-ROM Drive)
Total	480 GB; For larger internal storage requirements, please contact your local HP representative.

Maximum Storage Capacity - SATA Models

Internal	1TB (4 x 250 GB hot-plug hard drives)
Total	1 TB

Tape Drives

NOTE: A SCSI controller needs to be purchased to operate internal SCSI devices in the ATA Models.

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:

http://h18000.www1.hp.com/products/quickspecs/North_America/10233.html

	Quantity Supported	Position Supported	Controller
HP DAT24	Up to 1	C	HP Single Channel Ultra320 SCSI HBA
HP DAT40	Up to 1	C	HP Single Channel Ultra320 SCSI HBA
HP DAT72	Up to 1	C	HP Single Channel Ultra320 SCSI HBA



Power Specifications

Part Number	346127-001
Spare Kit	348626-001
Operational Input Voltage Range (V rms)	90 to 135 and 180 to 5 V auto ranging
Frequency Range (Nominal) (Hz)	47 to 63 Hz

Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	N/A	350	N/A	N/A	350	N/A
Nominal Input Current (A rms)	N/A	54.0	N/A	N/A	2.50	N/A
Max Rated Input Wattage Rating (Watts)	N/A	575310	N/A	N/A	575310	N/A
Max. Rated VA (Volt-Amp)	N/A	920	N/A	N/A	920	N/A
Efficiency (%)	N/A	~63%	N/A	N/A	~63%	N/A
Power Factor	N/A	N/A	N/A	N/A	N/A	N/A
Leakage Current (mA)	N/A	3.5mA	N/A	N/A	0.73.5mA	N/A
Maximum Inrush Current (A peak)	N/A	80120	N/A	N/A	120	N/A
Maximum Inrush Current duration (mS)	N/A	N/A	N/A	N/A	N/A	N/A

System Specifications

	Power **
HP ProLiant ML110 Fully Configured	(see **)
Fully Loaded System Input Wattage (W)	318W
Fully Loaded System Input Current (A rms)	4.4A @ 115V, 2.2A @ 230V
Fully Loaded System Thermal (BTU- Hr)	1907BTU
Fully Loaded System VA (Volt-Amp)	506
System Leakage with all power supplies loaded (mA)	0.75mA
System Inrush Current with all power supplies loaded (A)	80A
Power cord requirements	Nema 5-15P to IEC320-C13
	IEC320-C13 to IEC320-C14
	**Power shown is for a fully configured system consisting of (1) CPU, (4) double-sided DIMMs, (3) HDDs, (1) CD-ROM, (1) DVD-ROM, (4) PCI cards, and (1) power supply.
Power Cord Part Number	121565-001



Technical Specifications

System Unit	Dimensions (HxWxD) (with feet)	16.9 x 7.9 x 21.7 in (43.0 x 20.0 x 55.0 cm)	
	Weight (approximate)	37 lb (16.8 kg)	
	Input Requirements (per power supply)	Range Input Voltage	90 to 135 VAC/180 to 265 VAC
		Normal Line Voltage	115 or 230 VAC
	Line Frequency	50 to 60 Hz	
	Rated Input Current	load 8A at 115VAC, 4A at 230VAC	
	BTU Rating	1907 BTU	
	SCSI Connectors (SCSI Models only)	One internal LVD/SE connector for U160 devices, plus two internal SE connectors for legacy devices.	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	320W
		Maximum Peak Power	350W
	Temperature Range	Operating	50° to 93° F (10° to 35° C)
		Shipping	-40° to 150° F (-40° to 66° C)
	Relative Humidity (non-condensing)	Operating	20% to 80%
		Non-operating	5% to 90%
	Acoustic Noise	Idle (Fixed Disk Drives Spinning)	
		L WAd (BELS)	4.7
		L pAm (dBA)	31
		Operating (Random Seeks to Fixed Disks)	
		L WAd (BELS)	4.8
		L pAm (dBA)	32

Non-Hot Plug Ultra320 SCSI Hard Drives	36.4 GB 10K 271832-B21	Capacity	36,419.2 MB	
		Height	1.0 in (2.5 cm)	
		Width	4.0 in (10.16 cm)	
		Interface	Ultra320 SCSI	
		Transfer rate synchronous (maximum)	320 MB/s	
		Seek time (typical reads, including settling)	Single track	0.7 ms
			Average	5.4 ms
			Full-stroke	11 ms
			Rotational Speed	10,000 rpm
		Physical Configuration	Bytes/Sector	512
			Logical Blocks	71,132,000
		Operating Temperature	50° to 95° F (10° to 35° C)	



Technical Specifications

Non-Hot Plug ATA/100
Hard Drives

80 GB 7.2K
278424-B21

Capacity	80,054 MB	
Height	1.0 in (2.54 cm)	
Width	4.0 in (10.16 cm)	
Interface	ATA 100	
Transfer rate synchronous (maximum)	100 MB/s	
Seek time (typical reads, including settling)	Single track	0.8 ms
	Average	8.5 ms
	Full-stroke	17.8 ms
	Rotational speed	7,200 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	156,355,584
Operating Temperature	41° to 131° F (5° to 55° C)	

40 GB 7.2K
230534-B21

Capacity	40,027 MB	
Height	1.0 in (2.54 cm)	
Width	4.0 in (10.16 cm)	
Interface	ATA 100	
Transfer rate synchronous (maximum)	100 MB/s	
Seek time (typical reads, including settling)	Single track	0.8 ms
	Average	8.5 ms
	Full-stroke	17.8 ms
	Rotational speed	7,200 rpm
Physical Configuration	Bytes/Sector	512
	Logical Blocks	78,177,792
Operating Temperature	41° to 131° F (5° to 55° C)	



Technical Specifications

48X Max IDE (ATAPI) CD-ROM Drive	Applicable Disk	CD-ROM, CD-XA, CD-DA (Mode 1, Mode 2, Form 1 and 2) Photo CD (Single and Multi-session) Mixed Mode (Audio and Data combined) CD-R
	Capacity	540 MB (Mode 1, 12 cm) 650 MB (Mode 2, 12 cm)
Block Size	Mode 1	2,048 bytes, 1024 bytes
	Mode 2	2,340 bytes, 2,336 bytes, 1024 bytes
	CD-DA	2,352 bytes
	CD-XA	2,328 bytes
Interface	IDE (ATAPI)	
Access Times (typical)	Random	< 100 ms
	Full-Stroke	< 150 ms
Data Transfer Rate	Sustained	3000 to 7200 KB/s (20X to 48X)
	Burst	150 KBps to 7,200 KBps
	Bus Rate	16.7 MBps
Cache Buffer	128 KB	
Start-up Time (typical)	< 7seconds	
Stop Time	< 4seconds	
Laser Parameters	Type	Semiconductor Laser GaAlAs
	Wave Length	780 ± 25 nm
Operating Conditions	Temperature	41° to 113° F (5° to 45° C)
	Humidity	10% to 80%
Dimensions	(HxWxD, maximum)	1.7 x 5.85 x 8.11 in (42.9 x 150 x 208 cm)
	Weight	2.09 lb (0.95 kg)

Integrated Dual Channel Ultra ATA-100 Adapter (ATA Models only)	Drives Supported	Up to 5 IDE devices (3 devices channel 1/2 devices channel 2)	
	Channels	2 (primary and secondary)	
	Storage Capacity	640 GB	
	Data Transfer Method	32-bit/33-MHz PCI bus-master	
	Maximum ATA Channel Transfer Rate	100 MB/s per channel	
	Maximum Transfer Rate per PCI Bus (peak)	133 MB/s per channel	
	ATA Protocols	UDMA Mode [0-5]	
		PIO Mode [0-4]	
	ATA 100 Cable	80-Conductor Cable	
	Internal ATA Connectors	Two 40-Pin Connectors (primary and secondary)	



Technical Specifications

HP Single Channel Ultra3 SCSI Adapter (SCSI Models only)	Drives Supported	Up to 4 SCSI devices Wide
	Data Transfer Method	64-bit/33-MHz PCI bus-master
	SCSI Channel Transfer Rate	320 MB/s per channel
	Maximum Transfer Rate per PCI Bus (peak)	267 MB/s per channel
	SCSI Protocols	Wide Ultra4 SCSI, Wide Ultra2 SCSI, Wide Ultra SCSI-3, Fast-Wide SCSI-2, and Fast SCSI-2 Fast SCSI-2
	Electrical Protocol	Low Voltage Differential (LVD)
	SCSI Termination	Active Termination
	External SCSI Connectors	None

4 port SATA RAID controller (SATA Model Only)	SATA Protocol	SATA 1.5Gb/s
	SATA Ports	4 internal
	Port transfer rate	1.5 Gb/s total
	Drives Supported	Up to 4 SATA HDD
	Data Transfer Method	32-bit/66-MHz PCI bus-master
	Storage Capacity	up to 1TB (4x 250GB hot plug 1" SATA HDD)
	PCI	3.3 volt CPI slot compatibility only
	Cache Memory	64MB of SDRAM Memory for RAID and read cache
	RAID Levels Supported	RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 1 (Mirroring) RAID 0 (Striping)
	Maximum Capacity	up to 1TB (4x 250GB hot plug 1" SATA HDD)
	Logical RAID Volumes Supported	4
Operating Systems	Microsoft Windows® 2000 Server ; Microsoft Windows® Server 2003 ; Linux: Red Hat 9.0	

HP Single Channel Ultra3 SCSI Adapter (SCSI Models only)	Drives Supported	Up to 4 SCSI devices Wide
	Data Transfer Method	64-bit/33-MHz PCI bus-master
	SCSI Channel Transfer Rate	320 MB/s per channel
	Maximum Transfer Rate per PCI Bus (peak)	267 MB/s per channel
	SCSI Protocols	Wide Ultra4 SCSI, Wide Ultra2 SCSI, Wide Ultra SCSI-3, Fast-Wide SCSI-2, and Fast SCSI-2 Fast SCSI-2
	Electrical Protocol	Low Voltage Differential (LVD)
	SCSI Termination	Active Termination
	External SCSI Connectors	None



Technical Specifications

Broadcom 5705 PCI Gigabit NIC (embedded) 10/100/1000 WOL (Wake on LAN)	Network Interface	Ethernet Standards: IEEE 802.3, 802.3u, 802.3ad, and 802.3ab, 802.1x, 802.1Q and 802.1p	
	Data Transfer Method	32-bit PCI	
	Network Transfer Rate	10/100/1000 Mbps, Half- and full-duplex	Auto-negotiated speeds of 10/100/1000 Mbps in both half and full duplex
	Connector	RJ-45 connector	
	Cable Support	Category 5 or higher UTP wiring	

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