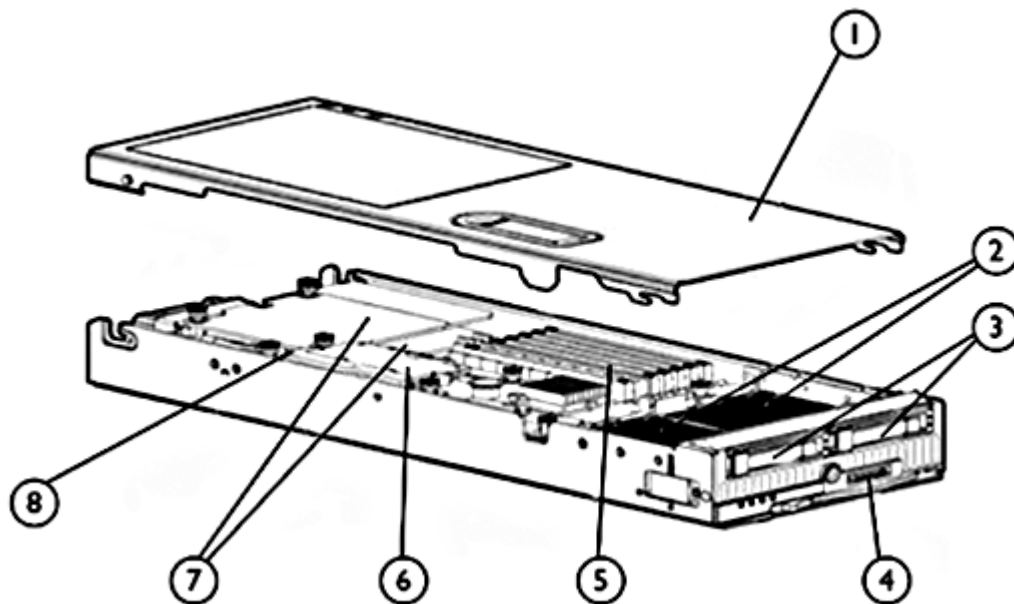


### Overview



1. Access Panel
2. Up to two Quad-Core or Dual-Core Intel® Xeon® processors
3. Small form factor (SFF) drive bays. Preconfigured with one 72GB SAS 10K disk drive and Microsoft Windows XP Professional Blade PC edition with 1 RDL preinstalled
4. Local I/O connector
5. Eight (8) PC2-5300, Fully Buffered DIMM (DDR2-667MHz) Memory Slots
6. HP Smart Array E200i Controller with 64MB or 128MB cache
7. Graphics mezzanine with NVIDIA Quadro FX560M or FX1600M graphics adapter
8. Internal USB Connector

### What's New

Addition of four new pre-configured models with dual processors Quad-Core Intel Xeon E5345 (2.33GHz), E5335 (2.00GHz) and single processor Quad-Core Intel Xeon X5365 (3.00GHz), X5355 (2.66GHz). Quad-Core Intel Xeon X5365 (3.00GHz) and X5355 (2.66GHz) processor option also available in configurable model as well. HP Linux Installer Kit adds support for RedHat Enterprise Linux 4. Additional pre-configured model with Japanese Windows XP preinstalled:

- Quad-core Intel® Xeon® Processor E5345 (2.33 GHz, 1333 FSB) 2-processors, FX560M preconfigured model
- Quad-core Intel® Xeon® Processor E5335 (2.00 GHz, 1333 FSB) 2-processors, FX560M preconfigured model
- Quad-core Intel® Xeon® Processor X5365 (3.00 GHz, 1333 FSB) 1-processor, FX560M preconfigured model
- Quad-core Intel® Xeon® Processor X5355 (2.66 GHz, 1333 FSB) 1-processor, FX560M preconfigured model
- Dual-core Intel® Xeon® Processor 5150 (2.66GHz, 1333 FSB), 1-processor, FX560M preconfigured model

### At A Glance

This document covers the HP ProLiant xw460c blade workstation only. For more information on HP BladeSystems c-Class Infrastructure and HP BladeSystem c-Class Interconnect Components, please see the following QuickSpecs:

HP BladeSystem c-Class Infrastructure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12517\\_div/12517\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.html)

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12524\\_div/12524\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html)

### Overview

The HP ProLiant xw460c provides greater density of 2-processor workstation blades without compromising power efficiency, performance, features and choices.

HP ProLiant xw460c Blade Workstation includes:

- **Processor:**
  - Up to two Quad-Core Intel® Xeon® 5300 series processors
  - Up to two Dual-Core Intel® Xeon® 5100 series processors
  - Supports Quad-Core 3.00, 2.66, 2.33 or 2.00 GHz 1333 MHz FSB-2x4 MB Level 2 cache memory or Dual-Core with up to 3.00 GHz 1333 MHz or 1066 MHz FSB-4MB Level 2 cache memory
  - Intel 5000P chipset supporting up to a 1333 MHz Front Side Bus
- **Memory:**
  - Up to 32 GB of memory supported by (8) slots of PC2-5300 Fully Buffered DIMMs at 667 MHz. (32-bit OS limits physical memory space to 4GB)
  - Advanced ECC memory support
  - Supporting memory interleaving (2x1)
- **Storage Controller:**
  - Integrated HP Smart Array E200i RAID controller with 64 MB (with optional battery-backed write-cache with an upgrade to 128MB cache (BBWC). Supports RAID 0, 1.
- **Internal Drive Support:**
  - Up to 2 small form factor (SFF) SAS hot-plug hard disk drives
- **Network Controller:**
  - Two (2) integrated single port NC373i Multifunction Gigabit Server Adapters
  - One (1) additional 10/100 NIC dedicated to iLO 2 Management
- **Graphics Adapter:**
  - Professional 2D & 3D graphics with hardware acceleration via graphics subsystem
  - NVIDIA Quadro FX560M
    - For professional 2D graphics & entry 3D graphics application
    - 256 MB (DDR2) memory
  - NVIDIA Quadro FX1600M
    - For professional 3D graphics application
    - 256 MB (DDR3) memory
  - Blade Workstation Graphics Software Environment
    - Quad-display capable on remote client system with HP Blade Workstation Client
    - Displays may be oriented in landscape or portrait mode. May also be tiled in matrices.
    - Resolution: Max width 7680 pixels (@7680x1200), max height 7680 pixels (@1200x7680)
    - Specialized NVIDIA nView Desktop Manager for ease-of-use/management of multiple displays
    - Unified graphics driver for FX1600M/FX560M/FX540M with xw460c
- **Internal USB Support:**
  - One (1) internal USB 2.0 connector for security key devices and USB drive keys
- **Form Factor:**
  - HP ProLiant xw460c blade workstation plugs vertically into the BladeSystem c7000 enclosure with up to 16 blades or horizontally into c3000 enclosure with up to 8 blades
- **Management:**
  - Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (includes virtual KVM and graphical remote console at no additional cost)
- **Operating Systems:**
  - Preinstalled with Microsoft Windows XP Professional SP2 Blade PC edition with 1 RDL (Remote Desktop License)
  - Microsoft Windows XP Professional x64 Edition with SP2 (Supported)
  - HP Installer Kit for Linux (provides essential Linux drivers and HP Remote Graphics Software for RedHat Enterprise Linux version 4)
- **Enclosures:**

### Overview

- HP ProLiant xw460c blade workstation plugs into the HP BladeSystem c7000 and c3000 enclosures.
- The HP BladeSystem c7000 enclosure is 17.4in (442 mm) in height, 17.5in (445 mm) wide and holds up to 16 HP ProLiant xw460c blade workstations plugged vertically.
- The HP BladeSystem c3000 enclosure is 10.4in (265 mm) in height, 19.1in (485 mm) wide and holds up to 8 HP ProLiant xw460c blade workstations plugged horizontally.
- Blade workstations, Server blades, storage blades, interconnect modules, power supplies, fans, and redundant Onboard Administrator modules are all designed to fit into the c7000 & c3000 enclosures.
- **Warranty:**
  - Protected by HP Services and a worldwide network of resellers and service providers. 3-year parts, 3-year Labor and 3-year on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives. SATA hard drives have a one year warranty.

### Standard Features (Blade Workstation)

<b>Processor</b>	<b>Quad-Core Processor Option Kits</b> Quad-Core Intel Xeon Processor X5365 (3.00 GHz, 1333 MHz FSB) Quad-Core Intel Xeon Processor X5355 (2.66 GHz, 1333 MHz FSB) Quad-Core Intel Xeon Processor E5345 (2.33 GHz, 1333 MHz FSB) Quad-Core Intel Xeon Processor E5335 (2.00 GHz, 1333 MHz FSB) <b>Dual-Core Processor Option Kits</b> Dual-Core Intel Xeon processor 5160 (3.00 GHz, 1333 MHz FSB) Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 MHz FSB) Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 MHz FSB) Dual-Core Intel Xeon processor 5130 (2.00 GHz, 1333 MHz FSB)* Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 MHz FSB) Dual-Core Intel Xeon processor 5110 (1.60 GHz, 1066 MHz FSB)* <b>NOTE:</b> Quad-Core Intel Xeon 5300 & Dual-Core Intel Xeon 5100 Series processors are 64-bit and support fully-buffered DIMM technology. <b>* NOTE:</b> Offered through configurable blade model only.
<b>Upgradeability</b>	Upgradeable to 2 processors
<b>Cache Memory</b>	1x4MB Level 2 cache memory (Dual-Core Intel Xeon 5100 Series) 2x4MB Level 2 cache memory (Quad-Core Intel Xeon 5300 Series)
<b>Chipset</b>	Intel® 5000P Chipset
<b>Memory</b>	<b>Type</b> PC2-5300 Fully Buffered DIMMs at 667 MHz <b>Standard</b> 2 GB (2 x 1 GB) 4 GB (2 x 2 GB) <b>Maximum</b> 32 GB (8 x 4 GB) <b>NOTE:</b> Memory must be installed in pairs. 32-bit OS limits addressable physical memory space to 4GB.
<b>Network Adapter</b>	(2) integrated single port NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine One (1) additional 10/100 NIC dedicated to iLO 2 Management

### Standard Features (Blade Workstation)

Graphics Adapter (mezzanine card)	NVIDIA Quadro FX560M graphics (via graphics mezzanine card)	
	<b>NOTE:</b> Workstation class performance for professional 2D graphics and entry 3D graphics	
	Memory size / type	256MB / DDR2
	Memory I/F	128-bit
	Color	128-bit
	Graphics driver	Single driver, compatible with FX1600M, FX560M and FX540M
	NVIDIA Quadro FX1600M graphics (via graphics mezzanine card)	
	<b>NOTE:</b> Workstation class high-performance for professional 3D graphics	
	Memory size / type	256MB / DDR3
	Memory I/F	128-bit
	Color	128-bit
	Graphics driver	Single driver, compatible with FX1600M, FX560M and FX540M

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**Integrated Manageability** Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (integrated on motherboard)

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<b>Storage Controller</b>	<b>HP Smart Array E200i Controller</b>	64MB memory module (standard). Supports RAID 0, 1. Available upgrades: 128MB with Battery-backed write cache
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<b>Maximum Internal Storage</b>	<b>Serial Attach SCSI (SAS)</b>	292GB SAS	2 x 146GB Serial SCSI
		144GB SAS	2 x 72GB Serial SCSI

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<b>Graphics (on-board)</b>	Integrated ATI RN-50 1280 x 1024 (32 MB DDR1 memory)
	<b>NOTE:</b> For system administrative use only

### Standard Features

Unified Foundation Management and Essentials Software Plug-ins	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage workstations, servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant blade workstations. RDP provides a central location to configure workstation hardware and deploy Windows. License for RDP must be purchased separately.
	Insight Management Agents	The Insight Management Agents should be installed on all HP workstations, and servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual blades.
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at <a href="http://www.hp.com/go/subscriberschoice">http://www.hp.com/go/subscriberschoice</a> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ProLiant Support Packs and ROMPaq, software	The latest software, drivers, and firmware fully optimized and tested for your ProLiant blades and options, available through Soft Packs downloaded from Software and Drivers download pages website at <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a> .

### Optional ProLiant Essentials Value Packs

Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

Integrated Lights-Out Select Pack – upgrades the Integrated Lights-Out processor with scripted and command line virtual media, Power Regulator reporting and enterprise security

**NOTE:** Available features may differ with server blades and workstation blades.

**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.

### Standard Features

#### OS Support

Microsoft Windows XP Professional SP2 Blade PC edition with 1 Remote Desktop License (RDL) preinstalled

Microsoft Windows XP Professional x64 Edition with SP2 (Supported)

HP Installer Kit for Linux; Provides essential Linux drivers and HP Remote Graphics Software for Linux. Drivers for RedHat Enterprise Linux version 4.

**NOTE:** This kit does not include the RedHat Enterprise Linux version 4 operating software. Must be acquired separately.

**NOTE:** HP Remote Graphics Software (RGS) for Linux is licensed software. To receive future software upgrades, a separate Software Assurance product is required.

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#### Remote Access

HP Remote Graphics Software with additional feature sets for Blade Workstation\*. Optional software maintenance subscription products are available.

**NOTE:** Description applies to Windows XP version only.

**NOTE:** HP Remote Graphics Software (RGS) is licensed software. To receive future software upgrades, a separate Software Assurance product is required.

**NOTE:** For more information on HP Remote Graphics Software, please find HP Remote Graphics in: <http://www.hp.com/workstations/>

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#### Intelligent Manageability

Integrated Lights-Out 2 Standard Blade Edition (iLO 2)

Virtual KVM(Text and Graphical modes)

Virtual Media (CD ROM ,floppy and USB flash drive) Virtual Power Button Control Integrated Remote Console Embedded system health Blade power consumption reading Browser, command line and scripted access

Dedicated LAN Connectivity

Automatic IP Configuration via DHCP/DNS/WINS

Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) and Secure Shell (SSH) Security

IML and iLO Event Logging

Support for 12 user accounts with customizable access

Upgrade to HP ProLiant Essentials Integrated Lights-Out Select Pack

**NOTE:** Advanced features such as Graphical Remote Console and browser accessible Virtual Floppy/CD-ROM are included with the BL c-Class blade workstation.

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#### Availability

Redundant ROM on each blade workstation

Advanced ECC Memory – can correct a multi-bit error (up to 4 bits) that occurs within one memory chip

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#### Security

One (1) internal USB 2.0 connector for security key devices and USB drive keys

Power-on password

Administrator's password

Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption

Integrated Lights-Out 2 can be disabled via a Global Setting

### Standard Features

#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP workstations, 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 workstations, servers and storage: HP ProLiant Blade Workstations, HP ProLiant Server Blades, HP Integrity, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services on your specific server model please contact your sales representative or go to <http://www.hp.com/go/factory-express>.

#### HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

#### Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

**NOTE:** Workstation Warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.

**NOTE:** Blade Enclosure Limited Warranty includes 3-year Parts, 3 year Labor, 3-year on-site support.

**NOTE:** Blade Interconnect Limited Warranty includes 1-year Parts, 1 year Labor, 1-year on-site support.

HP Care Pack services for the c7000 and c3000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module and GbE2c Ethernet Blade Switch, Virtual Connect and Cisco Catalyst 3020 Blade Switch.

HP Care Pack services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module and GbE2c Ethernet Blade Switch, Virtual Connect and Cisco Catalyst 3020 Blade Switch.

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalizing on your HP BladeSystem workstations' capabilities requires a service partner who thoroughly understands your workstation technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a HP BladeSystem workstation support offer to help you speedily deploy and maximize system uptime.

Enhanced Care – Minimum recommended service support offer designed to ensure customers have



### Standard Features

access to expert assistance, whenever they need it.

- *4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years.*

Continuance Care – Recommended service delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

- *4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years.*

Total Care – Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- *Support Plus 24 – Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.*

Deployment Services – HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of HP BladeSystem workstations - and free customers IT support staff to focus on what they do best, their business.

- *Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays*

**NOTE:** Some services cover server blades only. Check with your HP Services representative for details.

For a complete listing of service offerings and information visit:

<http://www.hp.com/services/bladessystemservices>

<http://www.hp.com/go/proliant/carepack>

### Pre-configured Models

#### FX560M graphics preconfigured models

HP ProLiant xw460c <b>X5365 QC 4G (1P)</b> 460281-B21	<b>Processor(s)</b> One of the following depending on model	(1) Quad-core Intel Xeon processor X5365 (3.00 GHz, 1333 FSB) (1) Quad-core Intel Xeon processor X5355 (2.66 GHz, 1333 FSB) (2) Quad-core Intel Xeon processor E5345 (2.33 GHz, 1333 FSB) (1) Quad-core Intel Xeon processor E5345 (2.33 GHz, 1333 FSB) (2) Quad-core Intel Xeon processor E5335 (2.00 GHz, 1333 FSB) (1) Quad-core Intel Xeon processor E5335 (2.00 GHz, 1333 FSB) (2) Dual-core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB) (2) Dual-core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB) (2) Dual-core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB) (1) Dual-core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB)
HP ProLiant xw460c <b>X5355 QC 4G (1P)</b> 458450-B21		
HP ProLiant xw460c <b>E5345 QC 4G (2P)</b> 457812-B21		
HP ProLiant xw460c <b>E5345 QC 4G (1P)</b> 451531-B21	<b>Cache Memory</b>	1x4MB Level 2 cache memory
HP ProLiant xw460c <b>E5335 QC 4G (2P)</b> 457811-B21	<b>Memory</b> One of the following depending on model	4 GB (2 x 2 GB) PC2-5300, FBD DDR2-667 2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667
HP ProLiant xw460c <b>E5335 QC 2G (1P)</b> 451530-B21		
HP ProLiant xw460c <b>5150 DC 4G (2P)</b> 442846-B21	<b>Graphics Adapter</b>	NVIDIA Quadro FX560M with 256MB memory
HP ProLiant xw460c <b>5150 DC 2G (1P)</b> 442847-B21	<b>Network Adapter</b>	(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management
HP ProLiant xw460c <b>5140 DC 4G (2P)</b> 440942-B21	<b>Storage Controller</b>	HP Smart Array E200i Controller with 64MB cache
HP ProLiant xw460c <b>5140 DC 2G (2P)</b> 440943-B21	<b>Hard Drives</b>	(1) 72GB SFF SAS disk drive
HP ProLiant xw460c <b>5120 DC 4GB (2P)</b> 443671-B21	<b>Internal Storage Bay</b>	(2) Hot-plug drive bays (Total 292GB maximum with SAS disk drives)
HP ProLiant xw460c <b>5120 DC 2GB (1P)</b> 442851-B21	<b>Optical Drive</b>	None
HP ProLiant xw460c		

### Pre-configured Models

<p>5150 DC 4G (2P) 442846-291 (Japanese)</p>	<p><b>Operating System</b></p>	<p>Microsoft Windows XP Professional SP2 Blade PC edition with 1 RDL, English or Japanese localization depending on model, (pre-installed)</p>
<p>HP ProLiant xw460c 5150 DC 2G (1P) 442847-291 (Japanese)</p>	<p><b>Form Factor</b></p>	<p>Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure</p>
<p>HP ProLiant xw460c 5120 DC 2GB (1P) 442851-291 (Japanese)</p>		

### FX1600M graphics preconfigured models

<p>HP ProLiant xw460c 5160 Dual-Core 4G (1P) 72GB 15k SAS HDD 452259-B21</p>	<p><b>Processor(s)</b> <i>One of the following depending on model</i></p>	<p>(1) Dual-core Intel Xeon processor 5160 (3.00 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB) (1) Dual-core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB)</p>
	<p><b>Cache Memory</b></p>	<p>1x4MB Level 2 cache memory</p>
<p>HP ProLiant xw460c 5150 Dual-Core 2G (1P) 72GB 10k SAS HDD 452260-B21</p>	<p><b>Memory</b> <i>One of the following depending on model</i></p>	<p>4 GB (2 x 2 GB) PC2-5300, FBD DDR2-667 2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667</p>
	<p><b>Graphics Adapter</b></p>	<p>NVIDIA Quadro FX1600M with 256MB memory</p>
<p>HP ProLiant xw460c 5140 Dual-Core 2G (1P) 72GB 10k SAS HDD 452261-B21</p>	<p><b>Network Adapter</b></p>	<p>(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management</p>
	<p><b>Storage Controller</b></p>	<p>HP Smart Array E200i Controller with 64MB cache</p>
	<p><b>Hard Drives</b></p>	<p>(1) 72GB SFF 15k rpm SAS disk drive (1) 72GB SFF 10k rpm SAS disk drive</p>
<p>HP ProLiant xw460c 5160 Dual-Core 4G (1P) 72GB 15k SAS HDD 452259-291 (Japanese)</p>	<p><b>Internal Storage Bay</b></p>	<p>(2) Hot-plug drive bays (Total 292GB maximum with SAS disk drives)</p>
	<p><b>Optical Drive</b></p>	<p>None</p>
	<p><b>Operating System</b></p>	<p>Microsoft Windows XP Professional SP2 Blade PC edition with 1 RDL, English or Japanese localization depending on model, (pre-installed)</p>
	<p><b>Form Factor</b></p>	<p>Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure</p>

### Configuration Information - Factory Integrated Models (North America region only)

**NOTE:** For Configure to Order requirements within EMEA region, please consult local Sales Contact.

**NOTE:** HP does not allow factory integration of options into standard models listed previously as "Pre-configured Models".

Configure-To-Order workstation blade must start with a CTO Blade.

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

**NOTE:** FIO indicates that this option is a Factory Installable Option, only available at time of CTO Blade purchase.

### Step 1: Base Workstation Blade Configuration (Select a configurable Blade)

<b>Configurable Model</b>	HP ProLiant xw460c Blade Workstation configurable (CTO) model	442824-B21
	<b>Configurable Model ships with:</b>	
	(2) Integrated single port NC373i Multifunction Gigabit NICs (1) additional 10/100 NIC dedicated to iLO 2 Management	
	Integrated HP Smart Array E200i RAID controller supporting RAID 0/1	
	<b>NOTE:</b> Controller cache module is required. Select the standard 64 MB module in step 2 below.	
	Two small form factor (SFF) SAS hard drive bays	
	Integrated Lights-Out 2 Standard Blade Edition	
	HP Remote Graphics Software with additional feature sets for Blade Workstation	

### Step 2: Choose Required Options

(one of the following from each list unless otherwise noted):

<b>Processors</b>	For single processor configuration choose:	
	<b>Quad-core Process Option Kits (FIO only)</b>	
	Quad-Core Intel Xeon processor X5365 (3.00 GHz, 1333FSB) Option Kit, FIO Base	458452-L21
	<b>NOTE:</b> If 2 processors are desired, select one 458452-L21 and one 458452-B21	
	Quad-Core Intel Xeon processor X5355 (2.66 GHz, 1333FSB) Option Kit, FIO Base	458451-L21
	<b>NOTE:</b> If 2 processors are desired, select one 458451-L21 and one 458451-B21	
	Quad-Core Intel Xeon processor E5345 (2.33 GHz, 1333 FSB) Option Kit, FIO Base	444715-L21
	<b>NOTE:</b> If 2 processors are desired, select one 444715-L21 and one 444715-B21	
	Quad-Core Intel Xeon processor E5335 (2.00 GHz, 1333 FSB) Option Kit, FIO Base	444716-L21
	<b>NOTE:</b> If 2 processors are desired, select one 444716-L21 and one 444716-B21.	
	<b>Dual-core Process Option Kits (FIO only)</b>	
	Dual-Core Intel Xeon processor 5160 (3.00 GHz 1333FSB) Option Kit, FIO Base	444714-L21
	<b>NOTE:</b> If 2 processors are desired, select one 444714-L21 and one 444714-B21.	
	Dual-Core Intel Xeon processor 5150 (2.66 GHz 1333 FSB) Option Kit, FIO Base	442843-L21
	<b>NOTE:</b> If 2 processors are desired, select one 442843-L21 and one 442843-B21.	
	Dual-Core Intel Xeon processor 5140 (2.33 GHz 1333 FSB) Option Kit, FIO Base	442842-L21
	<b>NOTE:</b> If 2 processors are desired, select one 442842-L21 and one 442842-B21.	
	Dual-Core Intel Xeon processor 5130 (2.00 GHz 1333 FSB) Option Kit, FIO Base	444713-L21
	<b>NOTE:</b> If 2 processors are desired, select one 444713-L21 and one 444713-B21.	
	Dual-Core Intel Xeon processor 5120 (1.86 GHz 1066 FSB) Option Kit, FIO Base	442841-L21
	<b>NOTE:</b> If 2 processors are desired, select one 442841-L21 and one 442841-B21.	
	Dual-Core Intel Xeon processor 5110 (1.60 GHz 1066 FSB) Option Kit, FIO Base	442840-L21
	<b>NOTE:</b> If 2 processors are desired, select one 442840-L21 and one 442840-B21.	
	<b>NOTE:</b> Use "Options" part numbers for later addition of processors	

### Configuration Information - Factory Integrated Models (North America region only)

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<b>Memory</b>	1 GB FBD PC2-5300 2 x 512 MB Kit – FIO only	442821-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit – FIO only	442822-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit – FIO only	442823-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit – FIO only	452265-B21

**NOTE:** Must be installed in pairs.

**NOTE:** Use "Options" part numbers for later addition of memory modules

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<b>Hard disk</b>	HP 146 GB 3G SAS 10K SFF SP HDD – FIO only	442819-B21
	HP 72 GB 3G SAS 10K SFF SP HDD – FIO only	442820-B21
	HP 72GB 3G SAS 15K SFF SP HDD – FIO only	431935-B21

**NOTE:** At least one disk required for OS installation.

**NOTE:** Use "Options" part numbers for later addition of hard disk

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<b>Controller Cache</b>	64 MB Cache – FIO Only	442844-B21
	128 MB Battery-Backed Cache Enabler – FIO Only	452266-B21

**NOTE:** Supports the HP Smart Array E200i Controller

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<b>Graphics Adapter</b>	NVIDIA Quadro FX 560M graphics kit – FIO only	442826-B21
	NVIDIA Quadro FX1600M graphics kit – FIO only	452262-B21

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<b>Operating System</b>	Microsoft Windows XP Professional SP2 Blade PC edition with 1 RDL preinstall (English) – FIO only	442845-B21
	HP Installer Kit for Linux – FIO Only	452257-B21

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### Step 3: Choose Additional Options for Factory Integration

**NOTE:** For additional options, including blade enclosures interconnect options and power subsystem options; please see the following QuickSpecs:

HP BladeSystem c-Class Infrastructure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12517\\_div/12517\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.html)

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12524\\_div/12524\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html).

### Options

ProLiant Essentials Value Pack Software	<b>ProLiant Essentials Integrated Lights-Out Select Pack</b>	
	ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License	452158-B21
	ProLiant Essentials Integrated Lights-Out Select Pack 8-server License	452161-B21
	<b>Featuring:</b> sophisticated remote control and security features for HP BladeSystem workstations in text console environments.	
	<b>NOTE:</b> For additional ProLiant Essentials Integrated Lights-Out Packs please see the QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html">http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html</a>	

Processors	<b>Quad-Core Process Option Kits</b>	
	Quad-core Intel Xeon Processor X5365 (3.00 GHz, 1333 FSB)	453190-B21
	Quad-core Intel Xeon Processor X5355 (2.66 GHz, 1333 FSB)	435565-B21
	Quad-core Intel Xeon Processor E5345 (2.33 GHz, 1333 FSB)	435564-B21
	Quad-core Intel Xeon Processor E5335 (2.00 GHz, 1333 FSB)	443753-B21
	<b>Dual-Core Process Option Kits</b>	
	Dual-Core Intel Xeon processor 5160 (3.00 GHz, 1333 FSB) Option Kit	416660-B21
	Dual-Core Intel Xeon processor 5150 (2.66 GHz, 1333 FSB) Option Kit	416659-B21
	Dual-Core Intel Xeon processor 5140 (2.33 GHz, 1333 FSB) Option Kit	416658-B21
	Dual-Core Intel Xeon processor 5130 (2.00 GHz, 1333 FSB) Option Kit	419735-B21
Dual-Core Intel Xeon processor 5120 (1.86 GHz, 1066 FSB) Option Kit	419734-B21	
Dual-Core Intel Xeon processor 5110 (1.60 GHz, 1066 FSB) Option Kit	416657-B21	

Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	<b>NOTE:</b> Must be installed in pairs.	

Hard Drives	<b>Serial Attached SCSI (SAS) SFF</b>	
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	<b>NOTE:</b> SAS drives have a 3 year warranty.	
	<b>NOTE:</b> Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: <a href="http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html">http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html</a>	

### Options

Controller Cache	128MB Battery-Backed Cache Enabler <b>NOTE:</b> Supports the HP Smart Array E200i Controller.	351580-B21
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HP StorageWorks SB40c Storage Blade	HP StorageWorks SB40c Storage Blade <b>NOTE:</b> Please see the SB40c Storage Blade QuickSpecs for additional options and configuration information at: <a href="http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html">http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html</a>	411243-B21
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USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) HP 1GB Drive Key II – USB 2.0 Flash Drive 2004 Standard Keyboard USB	DC172B AG382AA DT528A#xxx
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### Service and Support Offerings (HP Care Pack Services)

**NOTE:** The HP Care Pack service part numbers below for ProLiant c-Class blade workstations, cover the workstation blade and all HP branded hardware options qualified for the workstation, purchased at the same time or afterwards, internal to the workstation.

<b>Hardware Services On-site Service (Blade Workstation Hardware)</b>		
4-Hour On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic		U4873E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic		U4875E
4-Hour On-site Service, 5-Day x 9-Hour Coverage, 4 Years, Electronic (EMEA only)		U7946E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 4 Years, Electronic (EMEA only)		U7950E
4-Hour On-site Service, 5-Day x 9-Hour Coverage, 5 Years, Electronic (EMEA only)		U7948E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 5 Years, Electronic (EMEA only)		U7952E

**NOTE:** HP Care Pack services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module, Cisco Catalyst 3020 Blade Switch and GbE2c Ethernet Blade Switch.

<b>Hardware Services On-site Service</b>		
Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic		UE477E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic		UE478E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic		UE479E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic		UE480E
Hardware Installation, Electronic		U5988E

<b>Software Installation &amp; Start-up Services</b>		
Provides for the Installation and Start-up of ProLiant Essentials Rapid Deployment Pack, Electronic		U5683E

**NOTE:** Provides installation on a Customer supplied server designated as a Deployment Server. Includes the deployment of a single server. This new server will be deployed using either one of the pre-configured scripts or an image. In addition, the service will provide for the capture and storage of the configuration of the newly deployed server and orientation on product usage. To be delivered during standard office hours, standard office days.

### Options

Provides for the Installation and Start-up of Rapid Deployment Pack Implementation of Rapid Deployment Pack (Basic) (Electronic)	UA042E
Provides for the Installation and Start-up of System Insight Manager (Electronic)	UA041E
Provides for the Installation and Start-up of System Insight Manager Agents (Electronic)	UA040E
<b>NOTE:</b> For more information, customer/resellers can contact <a href="http://www.hp.com/hps/carepack/services/">http://www.hp.com/hps/carepack/services/</a>	
<b>Software Operating Environment Care Packs</b>	
3-year, 9x5 Blade Workstation Software Tech Support (2hr response)	UC271E
3-year, 24x7 Blade Workstation Software Tech Support (2hr response); North Americas region only	UF584E
1-year, 9x5 3-incident Blade Workstation Software Tech Support	UE354E



### Memory

#### DIMM installation guidelines:

1. All DIMMs must be PC2-5300 Fully Buffered DIMMs at 667 MHz.
2. Both DIMM slots in a memory bank must be populated.
3. Banks must be populated in sequential alphabetic order, starting with bank A.
4. Both DIMMs in a memory bank must be identical. Install identical DIMMs as pairs only, starting with DIMM socket 1, bank A.
5. Multiple advanced memory protection (AMP) modes are supported, based on FBDIMM population and RBSU selection. The blade workstation defaults to Advanced ECC

#### HP ProLiant xw460c Blade Workstation (1P and 2P Models)

##### Standard Memory

2048 MB (2 x 1024 MB) or 4096 MB (2 x 2048 MB) (depending on model) of PC2-5300, FBD DDR2-667 ECC DIMMs

##### Standard Memory Plus Optional Memory

Up to 26624 MB or 28672 MB (depending on model) of PC2-5300, FBD DDR2-667 ECC DIMMs. Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

##### Standard Memory Replaced with Optional Memory

Up to 32768-MB of PC2-5300, FBD DDR2 FBD-667 ECC DIMMs. Memory is available with removal of standard and the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

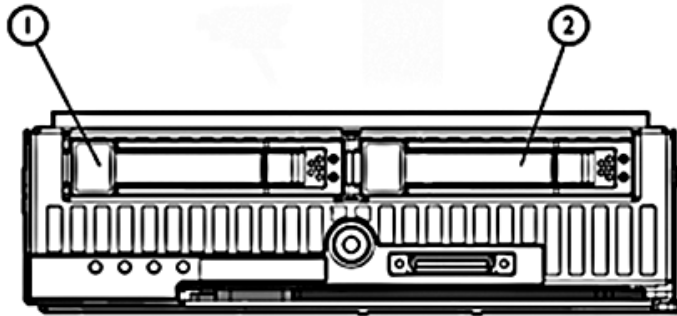
Memory		Slot							
		1A	2C	3A	4C	5B	6D	7B	8D
Standard	2048 MB	1024 MB	Empty	1024 MB	Empty	Empty	Empty	Empty	Empty
Standard	4096 MB	2048 MB	Empty	2048 MB	Empty	Empty	Empty	Empty	Empty
Optional	26624 MB	1024 MB	4096 MB	1024 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB
Optional	28672 MB	2048 MB	4096 MB	2048 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB
Maximum	32768 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB	4096 MB

**NOTE:** Maximum of 32768 MB can be achieved when 4096 MB DIMM is supported. 32-bit OS limits addressable physical memory space to 4096 MB.

#### Following are memory options available from HP:

1GB FBD PC2-5300 2X512MB Kit	397409-B21
2GB FBD PC2-5300 2X1GB Kit	397411-B21
4GB FBD PC2-5300 2x2GB Kit	397413-B21
8GB FBD PC2-5300 2x4GB Kit	397415-B21

## Storage



1-2

2 x SFF SAS Hard  
Drives

### Hard Drives

#### SAS Hard Drive

	Quantity Supported	Position Supported	Controller
72GB 10,000 rpm SAS, Single-Port	2	1-2	HP Smart Array E200i Controller
146GB 10,000 rpm SAS, Single-Port			
72GB 15,000 rpm SAS, Single-Port			

### Following are storage options available from HP:

HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
HP 72GB 3G SAS 15K SFF Single-Port HDD	431935-B21

## *Power Specifications*

To review maximum system power ratings for facilities planning purposes use the Active Answers Blade Power Sizer which is available via the online tool located at URL: <http://h71019.www7.hp.com/ActiveAnswers/cache/347628-0-0-0-121.html>

### Technical Specifications

HP ProLiant xw460c Blade Workstation	Dimensions	Height	2.207 in (5.61 cm)
		Depth	20.058 in (50.95 cm)
		Width	7.154 in (18.17cm)
	Weight	Maximum	14.20 lb (6.44kg)
		Operating	50° to 95°F (10° to 35°C)
	Temperature Range*	Non-Operating	-40° to 140°F (-40° to 60°C)
		Storage	-4 to 140°F (-20° to 60°C)
		Maximum Wet Bulb Temperature	86°F (-30°C)
		Operating	10% to 90%
		Shipping	10% to 90%
	Relative Humidity**	Storage	10% to 95%

\* All temperature ratings shown are for sea level. An altitude derating of 1.8°F per 1,000 ft (1°C per 304.8 m) to 10,000 ft (3048 m) is applicable. No direct sunlight allowed. Upper operating limit is 10,000 ft (3,048 m) or 70 Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia.

\*\*Storage maximum humidity of 95% is based on a maximum temperature of 113°F (45°C). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

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HP Smart Array E200i Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x4 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB cache: ECC protection
	Logical Drives Supported	Up to 32 logical volumes
	Maximum Logical Drive Capacity	144GB (2 x 72GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 1, 1+0 (Striping & Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware

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### Technical Specifications

NVIDIA Quadro FX 560M graphics adapter	Memory size	256 MB
	Memory type	DDR-2
	Memory interface	128-bit
	Core clock	450MHz
	Card type	MXM-II form factor
	I/O interface	PCIe (x8)
	Max power consumption	25W
	Precision	128-bit color, 12-bit sub-pixel, 4X Full-Scene Anti-Aliasing
	API	DirectX 9.0c, Shader Model 3.0; OpenGL2.0
	Upgradeable Firmware	Upgradeable Firmware

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NVIDIA Quadro FX1600M graphics adapter	Memory size	256MB
	Memory type	DDR-3
	Memory interface	128-bit
	Core clock	625MHz
	Card type	MXM-HE form factor
	I/O interface	PCIe (x8)
	Max power consumption	48W
	Precision	128-bit color, 12-bit sub-pixel, 8X Full-Scene Anti-Aliasing
	API	DirectX 10, Shader Model 4.0; OpenGL2.0
	Upgradeable Firmware	Upgradeable Firmware

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.