

# Lenovo L192 Wide LCD Monitor – View your images on a large screen

## Overview

The Lenovo™ L192 Wide Monitor offers users to view images in a 16 x 10 wide aspect ratio. It is available in business black.

This monitor is best suited for:

- Complex spreadsheets
- Multitasking
- General business applications
- Multiple-monitor environments

## Features/Benefits

- 19-inch (481-mm) viewable image size
- Optimum resolution: 1440 x 900
- Tilt stand for viewing comfort adjustments
- 16 x 10 aspect ratio
- Analog attachment
- Internal power
- Meets 100 mm VESA requirement

## Planned availability date

September 29, 2006

## At a glance

The Lenovo L192 LCD monitor offers:

- Viewable image size: 19.0 inch (481 mm)
- Aspect ratio: 16:10
- Pixel pitch: 0.285 mm
- Brightness: 300 cd/m2 (typical)
- Contrast ratio: 800:1 (typical)
- Viewing angles:
  - Horizontal:
    - 160° (at 10:1 contrast ratio)
    - 176° (at 5:1 contrast ratio)
  - Vertical:
    - 160° (at 10:1 contrast ratio)
    - 176° (at 5:1 contrast ratio)
- Response time: 5 ms (typical)
- Optimum display resolution of 1440 x 900 (automatically scales lower resolution to fill the screen)
- Tilt stand
- Bezel width: 25mm
- Analog system attachment
- Internal power
- 100 mm Video Electronic Standards Association (VESA) standard for mounting

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## Description

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### **VESA high refresh video signal timings**

This monitor supports a wide range of display modes, including a selection of the VESA timings of incoming video signals at up to 76 Hz (non-interlaced) for the following screen resolutions:

- 640 x 480
- 720 x 400
- 800 x 600
- 1024 x 768
- 1280 x 1024

Appropriate video adapter hardware and software must be installed in the attaching system unit.

Monitors are compatible with popular Lenovo PC system units.

### **VESA Display Data Channel (DDC)**

This monitor supports the DDC protocol to command interface (CI) level. Basic configuration information can be passed to a system unit from its attached monitor. Often referred to as Plug and Play, the protocol enables a DDC-enabled system unit to automatically configure the video adapter to drive the attached monitor at its optimum display mode without end-user intervention. For best use, the attaching system unit must also be hardware- and software-enabled for DDC operation.

The capabilities of the monitor are held in nonvolatile monitor memory in an encoded format. The data is received from the monitor by the system unit during boot-up and system configuration.

The EDID data sent by the monitor to the attached system unit also includes the monitor's serial number and other identification information. This can be held in the system unit until requested; for example, by a department LAN administrator needing to assess the location of all equipment connected to the LAN.

Date information transmitted in the monitor EDID data conforms to VESA EDID standard V2. This requires the year of manufacture (YOM) to be stored in a one-byte field as an offset from 1990 as derived from the following equation:

Value stored = (YOM -- 1990)	Value stored
2004	14
2005	15
2006	16

An international industrial standard by the name of DDC/CI was developed by VESA to expand upon an existing DDC standard. This new standard adds control functionality without the need for additional connections.

The main advantage of DDC/CI is its bi-directional communication structure between PC and monitor, which does not require a separate cable. All data are transmitted in both directions via the video graphics card and the standard VGA or DVI signal cable. This capability allows for functions like monitor control, adjustments, and diagnostics to be conducted via software using the mouse and keyboard. In an enterprise or firm, this capability also allows the potential of remote diagnostics and asset management by a technician via the LAN. Customer-supplied software is needed to implement these functions.

## **International Organization for Standardization (ISO)/DIS 13406**

ISO/DIS 13406 Part 2 ensures ergonomic requirements are met when the Lenovo L192 Wide LCD Monitor forms part of an ISO-compliant system. ISO/DIS 13406 Part 2 is an international standard addressing ergonomic factors for flat-panel displays.

ISO-capable elements do not necessarily make an ISO-compliant system when put together. To satisfy the requirements of ISO 13406 Part 2, a complete platform must be tested and must comply with all applicable elements of ISO 13406 Part 2. The platform includes:

- System unit
- Operating system
- Fonts
- Video subsystem
- Monitor
- Keyboard
- Mouse

When all contributing platform components satisfy their portion of the requirements, as verified by the required total system testing, the platform is ISO 13406 Part 2-compliant.

### **Low-frequency electromagnetic emissions**

The monitor meets the Swedish Board for Technical Accreditation (SWEDAC) MPR-2 requirements and those of MPR-3. MPR-2 is a guideline developed by the SWEDAC to limit the electromagnetic emissions and electrostatic fields generated by workstations. MPR-3 is the colloquial name for the Swedish Standard SS 43614 90:1995.

The monitor meets TCO'99 Environmental Label

- Environment
- Ergonomics
- Usability
- Reduction of electric and magnetic fields
- Energy consumption
- Electrical safety

### **VESA Display Power Management Signaling (DPMS)**

This monitor meets ENERGY STAR power consumption requirements through implementation of the DPMS protocol. For effective power management, the attaching system unit must also be hardware- and software-enabled for DPMS operation.

ENERGY STAR is a U.S. registered trademark. As an ENERGY STAR Partner, Lenovo has determined that this product meets ENERGY STAR guidelines for energy efficiency.

### **HelpWare®**

HelpWare is a comprehensive set of service and support offerings for a more productive and enjoyable computing experience. Many HelpWare services are included with the purchase of your Lenovo system, and additional services are available from the HelpWare support family.

## Technical characteristics

Feature	LCD Monitor
Monitor Size	19.0 inch (481 mm)
Optimum Resolution	1440 x 900
Maximum Resolution	1440 x 900
Aspect Ratio	16 x 10
Pixel pitch	0.285 mm
Brightness (typical)	300 cd/m2
Contrast ratio (typical)	800 : 1
Colors	> 16.0 million
Horizontal viewing angle	160° (at 10:1 contrast ratio) 176° (at 5:1 contrast ratio)
Vertical viewing angle	160° (at 10:1 contrast ratio) 176° (at 5:1 contrast ratio)
Response time (typical)	5 ms
Viewable area height	256.5 mm
Viewable area width	410.4 mm
Video input	15-pin D
Preset display modes	19
User-defined display modes	20
On-Screen Display menu languages	English, French, German, Spanish, Italian, Japanese, Simplified Chinese.
Tilt	5° forward 20° backward
Bezel width	25 mm
VESA mount	100 mm
Composite sync	Yes
Power supply	Universal
Power cord	1.8 m
ISO 13406 Part 2 capable	Yes
ISO 13406-2 Class II Pixel Defect	Yes
VESA DPMS power management capable	Yes
VESA DDC	2B/CI
FCC B compliance	Yes
TCO'99 Environmental Label	Yes
MPR-2 emission compliance	Yes
EU Directive	
2002/95/EC (RoHS)	Yes
2002/96/EC (WEEE)	Yes

### On-Screen Display (OSD) menu control

Digital user controls are located on the front bezel, to the left of the power on/off pushbutton. Adjustments are made in conjunction with the OSDs. After adjustments are made, with exception of brightness, contrast, and auto adjust, the controls can be locked to prevent further changes. User setup values are stored automatically. For ease of use, there is direct access for when using dual input, auto setup, and brightness.

Monitor controls and features include:

- Brightness/contrast
- Image position:
  - Horizontal position
  - Vertical position
- Image setup:
  - Automatic
  - Manual
- Image properties:
  - Color
- Options:
  - Information
  - Menu language
  - Menu position
  - Factory default
  - Accessibility
- Exit

The OSD menu supports the following languages: English, Spanish, Italian, German, French, Japanese, and Chinese.

## Indicators

The power indicator LED indicates the operational state of the monitor:

Indicator	Operating State
Blue LED	Normal operation
Amber LED	Active Off
Blue blinking	Frequency out of range

### Section 508 of the U.S. Rehabilitation Act

This monitor is capable when used in accordance with associated Lenovo documentation, of satisfying with the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it.

## Product positioning

The Lenovo L192 Wide LCD Essential monitor is part of the Lenovo flat-panel LCD monitor family. The flat-panel LCD family includes Essential and Performance monitors. Essential monitors include quality products at affordable prices. Performance monitors offer advanced features for improved productivity including analog and digital inputs, lift/tilt/swivel stands, and dual input. Lenovo flat-panel monitors by essential and performance series:

Monitor	Machine types	Monitor size	Viewable image size	Resolution (horizontal x vertical)
<b>Essential</b>				
L151	9205, 9165	15.0 in	15.0 in (381 mm)	1024 x 768
L171	9417, 9227	17.0 in	17.0 in (432 mm)	1280 x 1024
L192 Wide	6920	19.0 in	19.0 in (481 mm)	1440 x 900
L191	6135	19.0 in	19.0 in (483 mm)	1280 x 1024
<b>Performance</b>				
L151p	9205	15.0 in	15.0 in (381 mm)	1024 x 768
L171p	9417	17.0 in	17.0 in (432 mm)	1280 x 1024
L192p	9419	19.0 in	19.0 in (483 mm)	1280 x 1024
L201p	9320	20.1 in	20.1 in (511 mm)	1600 x 1200

Lenovo flat-panel 19-inch/20-inch comparison: The following table compares 19-inch normal, 19-inch wide and 20-inch normal LCD monitors:

Monitor	Size	Aspect Ratio	Resolution	Total Pixels	Total Viewable Area (mm x mm)*
L191, L192p	19 in	5 x 4	1280 x 1024	1,310,720	114,534
L192 Wide	19 in	16 x 10	1440 x 900	1,296,000	104,960
L201p	20 in	4 x 3	1600 x 1200	1,920,000	126,280

\* The total viewable area is calculated by the viewable height (in millimeters) multiplied by the viewable width (in millimeters).

Lenovo flat-panel monitors by application:

Segment	Application	Products
Entry business	Customer service, reception areas, Reservations	L151
General business	Word processing, business graphics, basic spreadsheets, Web browsing	L151p, L171, L191, L192 Wide
Advanced business	Complex spreadsheets, multitasking with multiple windows, high data content applications	L171, L171p, L191, L192p, L192 Wide
Professional graphics	CAD/CAM/CAE, desktop publishing, Web design, video editing, trading floor, digital content creation, imaging	L192p, L201p

**Trademarks**

HelpWare is a registered trademark of International Business Machines Corporation in the United States or other countries or both.

Lenovo is a trademark of Lenovo in the United States, other countries, or both

Other company, product, and service names may be trademarks or service marks of others.

# United States Announcement Supplemental Information

September 19, 2006

## Publications

The following publications are shipped with each monitor:

Title	Languages
L192 Wide User's Guide (on CD)	U.S. English, French, Spanish, German, Italian, Japanese, Russian, Polish, Traditional Chinese, Simplified Chinese, Croatian, Czech, Hungarian, Romanian, Slovakian, Slovenian, Korean, Turkish, Bulgarian, Arabic, Portuguese, Brazilian Portuguese
Setup Guide Safety and Warranty Information	

## Services

### IBM Integrated Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an On Demand Business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for Lenovo™ and many non-Lenovo offerings.

For details on available services, contact your IBM representative or visit

<http://www.ibm.com/services/>

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

<http://www.ibm.com/services/continuity>

For details on education offerings related to specific products, visit

<http://www.ibm.com/services/learning/index.html>

Select your country, and then select the product as the category.

## Technical information

**Physical specifications:** Dimensions and weight of the monitor and stand:

Parameter	Unpacked	Packed
Height	15.6 in (395 mm)	18.0 in (457 mm)
Width	18.2 in (462 mm)	20.7 in (527 mm)
Depth	7.6 in (192 mm)	6.0 in (152 mm)
Weight	11.4 lb (5.2 kg)	14.9 lb (6.8 kg)

## Operating environment

**Conservation:** Energy can be saved by switching monitors off overnight and whenever they are not in use for extended periods during the day.

## Power requirements

- Input voltage: 100 to 240 V ac
- Frequency: 50/60 Hz
- Power consumption:
  - Maximum: 36 watts
  - Normal use: 35 watts typical
  - VESA standby: <2 watts
  - VESA suspend: <2 watts
  - VESA off: <1 watt
  - Maximum earth leakage current:
    - <3.5 mA at 264 V
    - <0.25 mA at 100 V

Actual power consumption depends on the chosen display mode, the images displayed, and user control settings.

## Ambient temperature and relative humidity

Parameter	Temperature	Relative humidity	Altitude
Operating	0 to 45 deg C	10 to 80%	0 to 8,000 ft (2,438 m)
Shipping	-20 to 60 deg C	5 to 95%	0 to 35,000 ft (10,668 m)
Storage	-20 to 60 deg C	5 to 95%	0 to 12,000 ft (3,657 m)

**Acoustics:** Declared acoustical noise emissions LWAU = 4.5 bels or less. The noise emission level stated is the declared (upper limit) A-weighted sound power level, in bels, for a random sample of monitors. All measurements are made in accordance with ANSI S12.10 and reported in conformance with ISO/DIS 7779.

**Emissions:** All models meet emission category A requirements of Swedish Standard SS-436-14-90 (MPR-3) in addition to those of MPR-2.

All models meet the Swedish Board for Technical Accreditation (SWEDAC) emission guidelines contained in MPR 1990:10 when tested using the MPR 1990:08 test method. and meets TCO'99 Environmental Label. from the Swedish Confederation of Professional Employees (TCO), and the emission, power management, and electrical safety requirements of the Environmental Label.

**Ergonomics:** Compliance to the ISO standard ISO/DIS 13406 Part 2 provides that ergonomic requirements are met when the monitor forms part of an ISO-compliant system.

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## Regulatory agency approvals

- EMI/SAFETY
  - UL (U.S.)
  - CSA (Canada)
  - IEC950 CB Report
  - NEMKO (Norway)
  - SEMKO
  - DEMKO (Denmark)
  - FIMKO (Finland)
  - TUV (Germany)
  - TUV-S (Argentina)
  - CCC (China)
  - NOM (Mexico)
  - SASO (Saudi Arabia)
  - GOST (Russia)
  - PSB (Singapore)
  - GREEN MARK (Taiwan)
  - JEITA (Japan)
  - FCC B (U.S.)
  - IC (Canada)
  - CE (Europe)
  - MIC (Korea)
  - VCCI Class B (Japan)
  - BSMI (Taiwan)
  - South Africa
  - Australia
  - New Zealand
  - Jordan

## Environmental/energy/ergonomic/compatibility approvals

- TCO'99 Environmental Label
- ISO/DIS 13406 Part 2
- Software: Microsoft™ 2000/XP
- EU Directive 2002/96/EC —WEEE
- EU Directive 2002/95/EC —RoHS

**Hardware requirements:** The Lenovo L192 Wide LCD Monitor is intended to operate with system units or video adapters that generate a video output signal falling within the following specification:

Parameter	Monitor
Maximum resolution	1440 x 900 pixels
Optimum resolution	1440 x 900 pixels
Maximum pixel rate	137 MHz

The monitor supports VESA Standard Timings as detailed in "Display Monitor Timing Specification," Version 1.0, Revision 0.8, dated September 17, 1998, for the following modes:

- VGA: 640 x 480 at 60, 72, and 75 Hz
- SVGA: 800 x 600 at 56, 60, 72, and 75 Hz
- XGA: 1024 x 768 at 60, 70, and 75 Hz
- SXGA: 1280 x 1024 at 60, 70, 72 and 75 Hz
- WXGA+: 1440 x 900 at 60 and 75 Hz

This monitor supports the following modes:

- 640 x 350 at 70 Hz
- 640 x 480 at 66 Hz
- 720 x 400 at 70 Hz
- 1280 x 1024 at 76 Hz

**Software requirements:** The monitor features preset display modes. The actual display modes used depend on the attaching system unit, the operating system, and application software.

- Microsoft Windows™ Me
- Microsoft Windows 2000
- Microsoft Windows XP

## Preset Display Modes

Addressability (H x V Pixels)	Incoming video refresh rate
640 x 350	70 Hz NI
640 x 480	60 Hz NI
640 x 480	66 Hz NI
640 x 480	72 Hz NI
640 x 480	75 Hz NI
720 x 400	70 Hz NI
800 x 600	60 Hz NI
800 x 600	72 Hz NI
800 x 600	75 Hz NI
1024 x 768	60 Hz NI
1024 x 768	70 Hz NI
1024 x 768	75 Hz NI
1280 x 1024	60 Hz NI
1280 x 1024	70 Hz NI
1280 x 1024	72 Hz NI
1280 x 1024	75 Hz NI
1280 x 1024	76 Hz NI
1440 x 900*	60 Hz NI* (Optimum Display Mode)
1440 x 900	75 Hz NI

\* This is the optimum display mode for the best displayed image. Reduced image quality may result if used in other modes due to the image scaling limitations of LCD monitor technology.

- User modes: 17

The preset modes cannot be overwritten, but can be adjusted to personal choice. The new settings are stored automatically in one of the user locations and are recalled each time that mode is used. The factory settings for the mode in use, if any, can be restored by operating the reset control.

Information about the current incoming display mode is shown in the on-screen displays. However, it is displayed at the LCD panel's optimum refresh rate of 60 Hz.

It may be necessary to make some adjustments to the displayed image to compensate for variations in video signal timings. The user controls can be used to make these adjustments.

**Compatibility:** The monitor is supplied with a detachable 1.8-meter analog video signal cable.

This monitor has been tested with ThinkPad® and ThinkCentre® systems and is compatible with systems and graphics adapters which comply with the relevant parts of "VESA and industry standards and guidelines for computer display monitor timing" Version 1.0 Revision 0.8, adopted September 17, 1998. Supported display modes and number of colors are a function of the attaching system unit. The full range of display modes, refresh rates, and number of colors available with this monitor may not be available or supported with all combinations of system units, their operating systems, and application software. Implementation of monitor plug and play follows the VESA DDC standard. This standard must also be implemented in the attaching system unit hardware and software to be effective.

## Limitations

- Supported display modes are a function of the attaching system unit and video subsystem. The full range of display modes available with these monitors may not be available or supported with all combinations of system units, their operating systems, video adapter cards, and application software.
- Horizontal- and vertical-synchronization signal timings are critical in order to achieve acceptable screen images. As a consequence, support for all possible

variations in H- and V-sync timings for any display mode cannot be assumed.

- Adjustment of the user controls to enlarge the image to its maximum size requires that the signal timings of the display mode being used fall within the monitor-timing specifications.
- The number of colors shown in any display mode (up to a maximum of 16.2 million) is not limited by the monitor, but depends on the capabilities of the video adapter in the system unit.
- This monitor provides FCC class B — residential installation — compliance in all display modes.
- Implementation of monitor power management follows the VESA DPMS standard. This standard must also be implemented in the attaching system unit hardware and software for monitor power management to be effective. The system implementation must provide user-adjustable, power-down delay periods. The monitor power management function is invoked only after appropriate signals are received from an attached system unit or video adapter.
- Implementation of monitor Plug and Play follows the VESA DDC standard. This standard must also be implemented in the attaching system unit hardware and software for monitor Plug and Play to be effective.
- Certain functions require the system unit to be similarly configured, so all monitor functions may not be enabled when attached to a particular system unit.
- A 19.0-inch Wide TFT monitor has nearly 4.0 million subpixel transistors laid over an area exceeding 162 square inches. Cost-effective manufacturing processes introduce a small number of defective subpixel transistors. This monitor meets the ISO 13406-2 Class II Pixel Defect follows:
- The Auto-Setup “test pattern” can be used with Windows 3.1, Windows NT™ 3.5, Windows NT 4.0, Windows 95, Windows 98, Windows 2000, Windows XP, and DOS 7.0 only.

### **Planning information**

**Customer responsibilities:** The monitor is designated as customer setup. Instructions are provided in the *User's Guide*.

**Cable orders:** A 1.8-m power cord appropriate to the country is supplied.

### **Packaging**

#### *Shipment group*

- One monitor
- Attached tilt stand
- Attached 1.8-meter analog video signal cable (15-pin D to 15-pin D)
- Power cord
- A CD containing multilingual user's guide, set-up test pattern, and .INF file
- Setup guide
- Safety and warranty information

With the exception of the models for U.S., Canada, and Japan, the power cords (based on the country order code) are supplied by distribution centers.

### **Security, auditability, and control**

These products use the security and auditability features of the system unit to which they are attached.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

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### **Terms and conditions**

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**IBM Global Financing:** No

To obtain copies of the Lenovo Statement of Limited Warranty, contact your reseller or Lenovo. In the United States, call 800-426-7378 or write to:

Warranty Information  
P.O. Box 12195  
Research Triangle Park, NC 27709  
Attn: Dept ZPYA/B676

**Warranty period:** Three years

**Warranty service:** Customer carry-in or mail-in using Rapid Replacement Service

If warranty service is required, call the Customer Support Center. The Customer Support Center will assist with problem determination and initiate shipment of a replacement unit, if needed, to the customer's location by express delivery. For calls received by 5:00 p.m. customer's time, in most cases, the replacement unit will arrive within two business days (excluding holidays). The replacement unit becomes the property of the customer in exchange for the failed unit, which becomes the property of Lenovo. Pack the failed unit into the shipping carton that contained the replacement unit and return to Lenovo.

Transportation charges, both ways, are paid by Lenovo.

Failure to use the carton in which the replacement unit was received could result in charges incurred by the customer for damage to the failed unit during shipment.

**International Warranty Service (IWS):** IWS is available during the warranty period to customers who travel or relocate to countries where their computer is sold and serviced by a Service Provider authorized to perform warranty service. Eligible Lenovo computers are identified by their four-digit machine type.

You can obtain IWS through the method of service, such as CRU, depot, carry-in, or on-site, provided in the servicing country. Service methods and procedures vary by country, and some service or parts may not be available in all countries. Service centers in certain countries may not be able to service all models of a particular machine type. In addition, some countries may have fees and restrictions that apply at the time of service.

**Note:** Due to the earth's magnetic field, CRT monitors are manufactured to work in northern, southern, and equatorial regions of the earth and may not produce a satisfactory image when moved between them. Any required adjustment (if possible) is not covered under IWS and may be subject to a chargeable action. The magnetic field does not affect flat-panel LCD monitors and ThinkPad LCD displays.

**Licensing:** Programs included with this product are licensed under the terms and conditions of the license agreements that are shipped with the system.

**ThinkPlus™ and Lenovo Care maintenance services**

**Warranty and maintenance options:** The announced products may be eligible for ThinkPlus and Lenovo Care maintenance services, convenient prepackaged offerings for warranty service upgrades and maintenance services.

Refer to the **Prices** section for information on the availability of ThinkPlus and Lenovo Care maintenance services.

**Field-installable features:** No

**Model conversions:** No

**Machine installation:** Customer setup. Customers are responsible for installation according to the instructions Lenovo provides with the machine.

**Graduated program license charges apply:** No. This product does not contain licensed internal code or licensed machine code.

**Educational allowance:** None

**Trademarks**

Microsoft, Windows, and Windows NT are trademarks of Microsoft Corporation.

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ThinkCentre and ThinkPad are registered trademarks of Lenovo in the United States, other countries, or both

Other company, product, and service names may be trademarks or service marks of others.

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**Prices**

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Description	Order number	Machine type/model	List price(1)
Lenovo L192 Wide LCD Monitor	6920AB1	6920-AB1	\$259

(1) List price does not include tax or shipping and is subject to change without notice. Reseller prices may vary.

**Lenovo Care maintenance services for warranty and maintenance charges**

The following offerings apply to model AB1 of machine type 6920.

Description (19-inch Flat Panel)	Lenovo Care part number
3-year IOE 9 x 5	41K0554

**Lenovo Care MA for post warranty**

Description (19-inch Flat Panel)	Lenovo Care part number
1-year IOE 9 x 5 NBD	41K0555

For additional Lenovo Care maintenance service information, visit

<http://www.partner.us.pc.ibm.com>

IBM Global Services is the preferred, authorized warranty service, warranty service upgrade, and post-warranty service provider for Lenovo products (excluding mainland China).

For ServiceElect (ESA) maintenance service charges, contact IBM Global Services at 888-426-4343.