IBM System x3100 M3 entry-level tower server is ideal for small businesses

Table of contents

At a glance

Features of the new System x3100 M3 server include:

- Choice of Intel® processors
  - Celeron® G1101
  - Pentium® G6950
  - Core i3-540
  - Xeon® X3430
  - Xeon X3450
- 1 GB, or 2 GB PC3-10600 CL9 ECC DDR3 1333 MHz LP UDIMM system memory standard; 16 GB[1] maximum
- Integrated Serial-ATA (SATA) controller
- Four available I/O expansion slots include one PCI and three PCI Express®
- Six bays: Two 5.25-inch and four 3.5-inch
- DVD-ROM optical drive
- 350-watt auto-sensing power supply
- I/O ports
  - Six USB ports, two in front and four in rear
  - Integrated Gigabit Ethernet with RJ-45
  - One software-compatible serial port
  - One VGA

Overview

The System x3100 M3 server is designed for small businesses and first-time server buyers looking for a solution to improve business efficiency.

Server-class features

- Latest Intel dual- and quad-core processors
- 1 GB or 2 GB DIMMs - PC3-10600 CL9 ECC DDR3 1333 MHz LP UDIMM memory standard; 16 GB maximum
- Four expansion slots
  - One PCI 32-bit/33 MHz
  - Three PCI Express:
    -- One x16
    -- One x8
    -- One x4
- Integrated Gigabit Ethernet controller
- Integrated SATA controller that supports
  - One or two 250 GB SATA HDD standard (model dependent)
  - DVD-ROM optical drive

At your control

Manageability and serviceability features help diagnose problems quickly.

- Monitoring of memory faults
- Preboot eXecution Environment (PXE) and support for Wake on LAN®

At your service

Valuable services, utilities, and systems management tools help improve productivity and get your server up and running quickly.

- Baseboard management controller (BMC) simplifies overall management and helps with configuration setup
- Diagnostic tool available to indicate system failures
- Warranty: One-year customer replaceable unit (CRU) and on-site labor[2], limited warranty[3]; optional warranty service upgrades available

[1] When referring to memory, HDD, or tape backup capacity, GB stands for one billion bytes. Total user capacity may vary depending on operating environments.

Note: The Microsoft® Windows® Preinstallation Environment software contains a security feature that will cause an end-user customer's system to reboot without prior notification to the end-user customer after 24 hours of continuous use of the Microsoft Windows Preinstallation Environment.

[2] You may be asked certain diagnostic questions before a technician is sent.

[3] For information on IBM's Statement of Limited Warranty, contact your IBM® representative or reseller. Copies are available upon request.

Key prerequisites

Monitor, keyboard, and mouse.

Planned availability date

System x3100 M3

- July 28, 2010: Part number 425362X
- July 28, 2010: Part number 4253B2X
- July 28, 2010: Part number 4253D2X

Description

Solid-performing server subsystems

This uniprocessor entry-level server delivers solid, economical performance by coupling Intel Celeron, Pentium, Core i3, and Xeon processors, high-speed PC3-10600 CL9 ECC DDR3 1333 MHz LP UDIMM memory, and SATA storage subsystems.

The System x3100 M3 server uses high-performance chipsets to optimize throughput from the processors to memory and I/O.

Standard System x3100 M3 configurations

```
 Model      Processor      Cache    Memory   HDD/INT      Optical  Preload

4253-62X  3.06 GHz i3-540 4 M     2 GB    500 GB SATA   DVD-ROM  None
4253-B2X  2.4  GHz X3430  8 M     2 GB    250 GB SATA   DVD-ROM  None
4253-D2X  2.66 GHz X3450  8 M     2 GB    500 GB SATA   DVD-ROM  None
```

Expansion capacity and standard features

The System x3100 M3 server is housed in a minitower that can economically handle expansion. This model features:

- System board with four sockets that supports high-speed 1 GB, 2 GB, and 4 GB PC3-10600 CL9 ECC DDR3 1333 MHz LP UDIMM memory
  - 1 GB or 2 GB memory standard (model dependent)
  - Up to 16 GB supported
- Four adapter card slots that support multiple adapters for network or data storage:
  - One PCI slots 32/33 MHz, PCI 2.2
  - Three PCIe slots (x4, x8, x16)
- Six bays
  - Two accessible 5.25-inch half-high, one bay with DVD-ROM drive
  - Four internal 3.5-inch, slim high bays, one or two HDD standard (model dependent)
- Full-duplex, Gigabit Ethernet PCIe controller that speeds network communications to LAN clients
- A worldwide, auto-sensing 350-watt power supply with auto restart that supports maximum configurations and minimizes operator intervention after a temporary power outage
- One variable-speed system fan that cools microprocessor and I/O, plus one variable-speed power supply fan
- Integrated video controller

Systems management and control

System x3100 M3 servers comply with the 2000 ATX implementation guidelines. These guidelines offer better control and manageability of a network.

Supported features include:

- Wake on LAN for legacy LAN adapters to remotely turn the server on from an off state
- Wake on LAN support on integrated Ethernet controller
- Flash EPROM write protection
- SMBus isolation: One bus section and required system components during system power-down from other buses and components to prevent current leakage into devices without power
- PXE support
- SM BIOS
- MAC address on PC box

World-class support tools and programs

The System x3100 M3 server includes tools and programs that help you get your server running, and keep it running smoothly. IBM can help your company maintain ownership of technology leadership servers.

- The ServerProven[4] program lets you confidently configure your server with various devices and operating systems. This Web-based program provides compatibility information from actual testing of the System x3100 M3 server with various adapters and devices.

[4]IBM makes no warranties, expressed or implied, regarding non-IBM products and services that are ServerProven®, including but not limited to implied warranties of merchantability and fitness for a particular purpose. These products are offered and under warranty solely by third parties, including those designated as ServerProven or ClusterProven®.

Accessibility by people with disabilities

A U.S. Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www-03.ibm.com/able/product_accessibility/index.html

Product positioning

The System x3100 M3 server is positioned as a System x® entry-level tower server and is a confident choice for those businesses because it is built to last, easy to implement, and affordable.

The System x3100 M3 server combines server-class security and reliability, new technologies, and proven compatibility into an attractively priced, easy-to-implement entry server, supported by IBM sales and service. This server delivers solid performance to support typical general-purpose network, e-mail, or Web-serving applications in small businesses. Software-ready and with intuitive industry-standard management capabilities, the x3100 M3 server is ideal for transitioning business applications off your PC.

Product number

Options

```
                                            Part
Description                                 Number

IBM Virtual Media Key For x3100 M3 Systems   49Y7290
```

Note: All models are MTM.

```
                                            Part
Description                    MT    Mod    number

System x3100 M3                4253   62X    425362X
System x3100 M3                4253   B2X    4253B2X
System x3100 M3                4253   D2X    4253D2X
```

Publications

Software versions, features, and functions shipped with this system may change as new releases become available or may be discontinued at any time.

The *System x3100 M3 Installation Guide* and *Problem Determination and Service Guide*, in U.S. English, are available from

http://www-304.ibm.com/jct01004c/systems/support/

Services

Global Technology Services

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

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

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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

Specified operating environment

Physical specifications

	4253-62X
Processor	Core i3-540
Internal speed	3.06 GHz
External speed	1333 MHz
Number standard	1
Maximum	1
Cache	4 MB
Memory	2 GB
DIMMs	1 x 2 GB
Sockets UDIMM	4
Capacity UDIMM	16
Video controller	Integrated in BMC
Memory	8 MB (shared)
HDD	Fixed
HDD controllers	SATA
Channels	1
Connector int.	6
Connector ext.	0
Fixed disk standard	0
Tape backup	0
Total bays[5]	6
5.25/3.5-in half-high	2
3.5-in slim	4
2.5-in slim	0
Hot-swap	4
Internal capacity[6]	4 TB
Standard	2 x 250 GB
Bays available	3
5.25/3.5-in half-high	1
3.5-in slim	2
2.5-in slim	0
Hot-swap	4
Total slots	4
PCI 2.2 (32/33 MHz)	1
PCI-E (x16/xx8/x4)	3
Slots available	4
Management proc.	BMC
Ethernet controller	1 Gb
Optical drive (SATA)	DVD-ROM
Diskette drive	0
Power supply	350 W
Number standard	1
Hot-swap	No
Redundant power	No
Auto restart	Yes

	4253-B2X	4253-D2X
Processor	Xeon X3430	Xeon X3450
Internal speed	2.4 GHz	2.66 GHz
External speed	1333 MHz	1333 MHz
Number standard	1	1
Maximum	1	1
Cache	8 MB	8 MB
Memory	2 GB	2 GB
DIMMs	1 x 2 GB	1 x 2 GB
Sockets UDIMM	4	4
Capacity UDIMM	16 GB	16 GB
Video controller	Integrated in BMC	Integrated in BMC
Memory	8 MB (shared)	8 MB (shared)
HDD	Fixed	Fixed

```
HDD controllers          SATA            SAS/SATA
 Channels                1               4
 Connector int.          6               1
 Connector ext.          0               0
Fixed disk standard      0               0
Tape backup              0               0
Total bays[5]            6               6
 5.25/3.5-in half-high   2               2
 3.5-in slim             4               4
 2.5-in slim             0               0
 Hot-swap                0               4
 Internal capacity[6]    4 TB            4 TB
 Standard                1 x 250 GB      2 x 250 GB
Bays available           4               3
 5.25/3.5-in half-high   1               1
 3.5-in slim             3               2
 2.5-in slim             0               0
 Hot-swap                0               0
Total slots              4               4
 PCI 2.2 (32/33 MHz)     1               1
 PCI-E (x16/x8/x4)       3               3
Slots available          4               3
Management proc.         BMC             BMC
Ethernet controller      1 Gb            1 Gb
Optical drive (SATA)     DVD-ROM         DVD-ROM
Diskette drive           0               0
Power supply             350 W           350 W
 Number standard         1               1
 Hot-swap                No              No
 Redundant power         No              No
 Auto restart            Yes             Yes
```

[5] This bay does not support HDD options. It can be used for removable media devices such as tape backup.

[6] Capacities are based on the installation of 750 GB SATA HDDs For the most up-to-date information on supported HDD options, visit

http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

SATA 250 GB HDD characteristics

- Formatted capacity: 250 billion bytes (min)
- Average read seek time: less than 8.9 ms
- Burst transfer rate (maximum): 3.0 Gpbs
- Average latency: 4.2 ms
- Drive rotation speed (rpm): 7,200 rpm
- Sustained data transfer rate: 29.6 to 61.1 MB/s
- PFA/S.M.A.R.T enabled: No
- Interface: Serial-ATA

16x SATA DVD-ROM drive characteristics

- Interface: SATA
- Average access time including latency: Less than 120 ms
- CD speed: 48x
- Cache size: 512 KB

Video integrated controller

- Full IBM VGA compliant
- Maximum display resolution: 1600 x 1200 at 60 Hz

Dimensions

- Width: 215.9 mm (8.5 in)
- Depth: 539.8 mm (21.25 in)
- Height: 438.2 mm (17.25 in)
- Weight
  - Minimum ship configuration: 15 kg (33 lb)
  - Maximum ship configuration: 18 kg (40 lb)

Minimum clearance for cooling

- 100 mm (4 in) at the back
- 50 mm (2 in) on each side

Electrical

- 100 to 127 (nominal) V ac; 50 to 60 Hz; 7.0 A (maximum)
- 200 to 240 (nominal) V ac; 50 to 60 Hz; 3.5 A (maximum)
- Input kilovolt-amperes (kVA) (approximately)
  - Minimum configuration: 0.095 kVA
  - Maximum configuration: 0.435 kVA
- Btu output
  - Ship configuration: 324 Btu/hr (95 watts)
  - Full configuration: 1484 Btu/hr (435 watts)
- Acoustical noise emission level: Sound power levels
  - 4.8 bels (idling)
  - 5.1 bels (operating)

Note: The noise emission level stated is the declared (upper limit) A-weighted sound power level, in bels, for a random sample of machines, typically configured and operating in idle mode (powered on, but no DASD read/write or other I/O activity). All measurements have been made in accordance with ANSI S12.10 and reported in conformance with ISO 9296.

The System x3100 M3 server is shipped as a floor-standing server.

Standards

These systems support or comply with the following standards:

- Peripheral Component Interconnect (PCI) specification 2.2.
- This model is ISO 9241 capable. A supplier's declaration is available.

Equipment approvals and safety

- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-2006, GOST R 51317.3.3-99
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A
- TUV-GS (EN60950-1 /IEC60950-1,EK1-ITB2000)

Operating environment

- Air temperature:

  Server on

  - 10.0° to 35.0° C (50° to 95° F); altitude: 0 to 914.4 m (3,000 ft)

– 10.0° to 32.0° C (50° to 89.6° F); altitude: 914.4 m (3,000 ft) to 2,133.6 m (7,000 ft)

Server off

– 10.0° to 43.0° C (50° to 109.4° F); maximum altitude: 2,133.6 m (7,000 ft)

Shipping

– -40° to 60° C (-14° to 140° F)
- Relative humidity: 8% to 80%
- Maximum altitude: 2,133.6 m (7,000 ft)

Energy value tables - System x3100 M3

Hardware requirements

For attended installation of an operating system, this server requires a compatible:

- USB keyboard
- USB mouse
- HDD
- Display

Unattended or remote installation may be performed without requiring some or all of these components. Review your unattended software installation program information for specific hardware configuration requirements.

For service, the server requires a compatible:

- Keyboard
- Mouse
- HDD
- Display

When having the unit serviced, plan to have these components attached to your server either directly or indirectly via a console switch.

Software requirements

The following network operating systems are supported in the System x3100 M3 server:

- Microsoft:
  – Microsoft Windows Server 2008, Enterprise x86 Edition
  – Microsoft Windows Server 2008, Enterprise x64 Edition
  – Microsoft Windows Server 2008, Standard x86 Edition
  – Microsoft Windows Server 2008, Standard x64 Edition
  – Microsoft Windows Server 2008, Web x86 Edition
  – Microsoft Windows Server 2008, Web x64 Edition
  – Windows Small Business Server 2008 Premium Edition
  – Windows Small Business Server 2008 Standard Edition
- Linux®:
  – SUSE LINUX Enterprise Server 11 for x86
  – SUSE LINUX Enterprise Server 11 for AMD64/EM64T
  – SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
  – Red Hat Enterprise Linux 5 Server Edition

– Red Hat Enterprise Linux 5 Server x64 Edition

– Red Hat Enterprise Linux 5 Server with Xen x64 Edition

– Red Hat Enterprise Linux 5 Server Edition with Xen

Note: For additional support, certification, and version information on network operating systems, visit

   http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Compatibility

The System x3100 M3 systems contain licensed system programs that include set configuration, set features, and test programs. System BIOS (flash BIOS modified to IBM specifications) is loaded from a "flash" EEPROM into system memory. This BIOS provides instructions and interfaces designed to support the standard features of the server and to maintain compatibility with many current software programs.

To view detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with System x servers, visit

   http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Contact your IBM representative, IBM Business Partner, or refer to the *IBM Sales Manual* for information on the compatibility of hardware and software for xSeries® servers. The *Sales Manual* is updated periodically as new features and options are announced that support these servers.

Limitations

- The open 5.25-inch bay supports removable media devices, such as tape backup devices. It does not support HDD options.
- Wake on LAN is not supported if systems are improperly shut down.

Refer to the Software requirements section for operating system limitations.

Planning information

Customer responsibilities

Customer setup

The System x3100 M3 server is designated as customer setup. Customer setup instructions are shipped with systems.

Standard SATA configurations

The System x3100 M3 server uses the SATA interface for the optical drive.

Six single-drop SATA cables are used to attach up to four SATA HDDs and two SATA optical disk drives (ODDs).

Supported memory options

- 1 GB (1x1GB) 1Rx8 1Gbit PC3-10600 DDR3-1333 LP UDIMM 44T1568
- 2 GB (1x2GB) 2Rx8 1Gbit PC3-10600 DDR3-1333 LP UDIMM 44T1569
- 4 GB (4 GB) 2Rx8 2Gbit PC3-10600 LP UDIMM 44T1571

Rack installations

The System x3100 M3 server can be converted to a rack-mounted unit by installing a 5U x 20-inch Tower-to-Rack Kit. The 5U System x3100 M3 server can be installed in a 19-inch industry-standard rack such as:

- IBM 25U Standard Rack

- IBM 42U Standard Rack Extension
- IBM 42U Standard Rack

    If using a non-IBM rack, the cabinet must meet the EIA-310-D standards with a depth of at least 71 cm (28 in). Also, adequate space (approximately 5 cm (2 in) for the front bezel and 2.5 cm (1 in) for air flow) must be maintained from the slide assembly to the front door of the rack cabinet to allow sufficient space for the door to close and provide adequate air flow.

Cable orders

The Gigabit full duplex, Ethernet controller, standard with the server, is connected directly to a RJ-45 connector. The RJ-45 connector provides a 10/100/1000Base-T interface for connecting twisted-pair cable to the Ethernet network. Cabling is not included with the server. To connect the Ethernet controller to a repeater or switch, use a UTP cable with RJ-45 connectors at both ends. For 100/1000 Mbps operation, Category 5, or better, cabling must be used.

There are no additional cabling requirements, other than for system power, keyboard, mouse, and monitor connections.

Installability

The System x3100 M3 server requires about 30 minutes for installation. Installation includes unpacking, setting up, and powering on the system. Additional time is required to install an operating system, additional adapters, or features.

Packaging

One box

- System unit carton: system unit
- System unit power cord
- Country kit:
    - Publications/CD bag:
        -- Documentation CD
        -- PC Doctor CD
        -- Important Notices Flyer
        -- Warranty information (China only)

The System x3100 M3 system is shipped as a single package. The country kit is contained inside the top portion of the system unit carton.

Supplies

None

Security, auditability, and control

Security and auditability features include:

- Power-on password (secured boot).
- A mechanical lock allows you to lock the system cover to prevent unauthorized personnel access to internal components of the server.
- Tie-down capability is available by using a common U bolt attached to the back frame.
- Operation without a keyboard and display is supported after the server is configured with the appropriate network operating system. This minimizes the risk of unauthorized people tampering with the system software and configuration.

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

Global Technology Services

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

Terms and conditions

To obtain copies of the IBM Statement of Limited Warranty, contact your reseller or IBM.

Warranty period

- One year

Optional IBM features initially installed in an IBM machine carry the same warranty period as the machine. If installed after the initial machine installation, they carry the balance of the machine warranty or the optional feature warranty, whichever is greater.

The following has been designated as a consumable or supply item and is, therefore, not covered by this warranty:

- Battery (System)

Warranty service

If required, IBM provides repair or exchange service, depending on the type of warranty service specified below for the machine. IBM will attempt to resolve your problem over the telephone or electronically by access to an IBM Web site. Certain machines contain remote support capabilities for direct problem reporting, remote problem determination, and resolution with IBM. You must follow the problem determination and resolution procedures that IBM specifies. Following problem determination, if IBM determines On-site Service is required, scheduling of service will depend upon the time of your call, machine technology and redundancy, and availability of parts. Service levels are response-time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations. Additional charges may apply outside IBM's normal service area. Contact your local IBM representative or your reseller for country- and location-specific information.

The type of service is Customer Replaceable Unit (for example, keyboard, mouse, speaker, memory, or hard disk drive) Service and On-site Service.

Customer Replaceable Unit (CRU) Service

IBM provides a replacement CRU to you for you to install. CRU information and replacement instructions are shipped with your machine and are available from IBM at any time on your request. A CRU is designated as being either a Tier 1 (mandatory) or a Tier 2 (optional) CRU. Installation of Tier 1 CRUs, as specified in this announcement, is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service specified below, On-site Service.

Based upon availability, a CRU will be shipped for next-business-day (NBD) delivery. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, return instructions and a

container are shipped with the replacement CRU, and you may be charged for the replacement CRU if IBM does not receive the defective CRU within 15 days of your receipt of the replacement.

The following parts have been designated as Tier 1 CRUs:

- Hard disk drive
- Memory DIMM
- Power cord
- Service label
- System label
- Top cover

On-site Service

This provides On-site Repair, 9 hours per day, Monday through Friday excluding holidays, NBD response. IBM or your reseller will repair the failing machine at your location and verify its operation. You must provide a suitable working area to allow disassembly and reassembly of the IBM machine. The area must be clean, well lit, and suitable for the purpose. On-site Service is not available in all countries, and some countries have kilometer or mileage limitations from an IBM service center. In those locations where On-site Service is not available, the normal in-country service delivery is used.

International Warranty Service (IWS)

IWS is available in selected countries or regions.

The warranty service type and the service level provided in the servicing country may be different from that provided in the country in which the machine was purchased.

Under IWS, warranty service will be provided with the prevailing warranty service type and service level available for the IWS-eligible machine type in the servicing country, and the warranty period observed will be that of the country in which the machine was purchased.

To determine the eligibility of your machine and to view a list of countries where service is available, visit

https://www.ibm.com/systems/support/supportsite.wss/warrantyform? brandind=5000008

For more information on IWS, refer to Services Announcement ZS01-0168, dated September 25, 2001.

Terms and conditions for Express Seller Products

The designated products are available only as part of the IBM Express Seller program. For full details of the terms and conditions, please refer to the Express Seller Program terms and conditions applicable to a specific Business Partner.

Note: Copies of the Express Seller Program terms and conditions are available locally.

In summary:

- Orders for Express Seller Products must be placed on an order specifically identified as 'Express Seller' and should not contain any other (non-Express Seller) product. other (non-Express Seller) product.
- Orders may only be placed for currently eligible Express Seller products.
- IBM will undertake to deliver products purchased under the terms of the Express Seller program within a specified number of days. For full details of the delivery

terms for your country, please refer to the Express Seller Program terms and conditions.

- Products purchased under this program are eligible for 15 days price protection from the date of shipment. For full details, please refer to the program terms and conditions.
- There is no accommodation for the return to IBM of any products ordered under the terms of this program.
- Products purchased under the terms of this offering are not available to be sold as part of a special bid.

Licensing

Programs included with this product are licensed under the terms and conditions of the License Agreements that are shipped with the system.

IBM hourly service rate classification

Two

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Licensed machine code

IBM Machine Code is licensed for use by a customer on the IBM machine for which it was provided by IBM under the terms and conditions of the IBM License Agreement for Machine Code, to enable the machine to function in accordance with its specifications, and only for the capacity authorized by IBM and acquired by the customer. You can obtain the agreement by contacting your IBM representative or visiting

http://www-304.ibm.com/servers/support/machine_warranties/
machine_code.html

IBM may release changes to the Machine Code. IBM plans to make the Machine Code changes available for download from the IBM System x technical support Web site

http://www-304.ibm.com/systems/support/

If the machine does not function as warranted and your problem can be resolved through your application of downloadable Machine Code, you are responsible for downloading and installing these designated Machine Code changes as IBM specifies. If you would prefer, you may request IBM to install downloadable Machine Code changes; however, you may be charged for that service.

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Announcement countries

CEEMEA: All models

Russia, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Ukraine, Azerbaijan, Tajikistan, Turkmenistan, Uzbekistan: All models

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