



# IBM BladeCenter GPU Expansion Blade enables GPGPU computing within BladeCenter systems

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## At a glance

The IBM® BladeCenter® GPU Expansion Blade improves performance for compute- and server-intensive applications while integrating the graphics processing unit (GPU) into the blade ecosystem, offering the versatility, ease of use, reliability, and server energy efficiency associated with IBM BladeCenter.

## Overview

### IBM BladeCenter GPU Expansion Blade

The IBM BladeCenter GPU Expansion Blade provides the capability to attach next-generation GPU technology on selected server blades. This is ideal for many applications written to leverage acceleration and visualization performance advantages offered in General-purpose computing on graphics processing units (GPGPU). This product ships integrated with one NVIDIA Tesla M2070 or Tesla M2070Q GPU. In addition, the IBM BladeCenter GPU Expansion Blade is stackable, allowing clients to stack up to three GPU Expansion Blades on a single-base compute blade, thereby offering a unique density advantage versus the competition. This GPU expansion unit is only supported on selected server blades.

Features and benefits of the IBM BladeCenter GPU Extension Blade:

- Is supported on HS22 (7870)
- Offers unique stacking capability that allows users to stack up to three GPU expansion blades on a single server blade
- Provides users with access to the high speed I/O slot (CFFh) in a stacked configuration
- Creates a double-wide, triple-wide, or quad-wide solution for HS22 blades
- Ships integrated with one GPU, either NVIDIA Tesla M2070 or NVIDIA Tesla M2070Q

For a list of supported blades, adapters, and operating systems, refer to the ServerProven® website

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

## Key prerequisites

- BladeCenter chassis
- Monitor, keyboard, and mouse for setup

- Network switch module
- Boot device, such as on-board HDD or network storage device
- Advanced Management Module with latest-level firmware
- Rack and appropriate PDUs and main power distribution

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## Planned availability date

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December 13, 2010

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## Description

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### **IBM BladeCenter GPU Expansion Blade with NVIDIA Tesla M2070 and IBM BladeCenter GPU Expansion Blade with NVIDIA Tesla M2070Q**

This expansion unit is integrated with one NVIDIA Tesla M2070 or NVIDIA Tesla M2070Q GPU.

**Note:** Please contact IBM sales representative if customer has specific question on the capability.

### **Accessibility by people with disabilities**

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

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## Product positioning

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The IBM BladeCenter GPU Expansion Blade integrates GPU technology into the IBM BladeCenter ecosystem delivering industry-leading flexibility and reliability to GPU computing. The expansion blade also offers an unprecedented stacking capability that allows clients to scale the density of GPUs per compute blade, increasing computing capability.

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## Statement of general direction

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IBM plans to support the BladeCenter GPU Expansion Blade (BGE) with infiniband using currently shipping options no later than February 2011. This statement represents IBM's current intent, is subject to change or withdrawal, and represents only goals and objectives.

All statements regarding IBM's plans, directions, and intent are subject to change or withdrawal without notice. Any reliance on these statements of general direction is at the relying party's sole risk and will not create liability or obligation for IBM.

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## Product number

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### **Pseudo Options**

Description	Part Number
IBM BladeCenter GPU Expansion Blade with NVIDIA Tesla M2070	81Y4103
IBM BladeCenter GPU Expansion Blade	81Y4126

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## Publications

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An installation and user's guide, and safety and warranty publications are shipped with each IBM BladeCenter GPU Expansion Blade. The following publications are available immediately.

Title	Order Number
BladeCenter Solutions	GM13-0127
System x® Family Brochure	GM13-0128

The publication *IBM BladeCenter GPU Expansion Blade Installation and User's Guide* and *Hardware Maintenance Manual*, in U.S. English, are available from

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

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<http://publib14.boulder.ibm.com/infocenter/systems>

### IBM Publications Center Portal

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<http://www.ibm.com/shop/publications/order>

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided, as well as payment options via credit card. A large number of publications are available online in various file formats, which can currently be downloaded free of charge.

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## Services

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### Global Technology Services

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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 IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

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.

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## Technical information

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### Specified operating environment

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#### **Physical specifications**

- Approximate height: 56 mm (2.28 in)
- Approximate width: 245 mm (9.7 in)
- Approximate depth: 446 mm (17.6 in)

#### **Operating environment**

- Temperature:
  - 10.0° C to 35.0° C (50° F to 95° F) at 0 to 914 m (0 to 3,000 ft)
  - 10.0° C to 32.0° C (50° F to 90° F) at 914 to 2,133 m (3,000 to 7,000 ft)
- Maximum altitude: 2,133 m (7,000 ft)
- Relative humidity: 8% to 80%

#### **Standards**

This system supports or complies with the following standards:

- Multiprocessor Specification (MPS) 1.4
- Hardware-enabled to meet the International Organization for Standardization (ISO) 9241, Part 3

#### **Agency approvals**

- UL 60950-1
- CSA C22.2 No. 60950-1 (cUL)
- C-Tick
- CISPR 22 Class A
- VCCI Class A
- FCC Class A
- CE-Mark
- EN 55022/55024 1998
- Canada ICES - 003, Class A
- IEC 60950-1:2005

#### **Hardware requirements**

BladeCenter chassis supported.

#### **Software requirements**

##### **Programming requirements**

The following network operating systems have been tested for compatibility with the BladeCenter HS22:

- Microsoft®:
  - Windows® Server 2008 HPC Edition (64-bit)
  - Windows HPC Server 2008 (64-bit)
  - Windows 2008 R2
- Linux®:

- Red Hat EL 5 (Server) 64-bit
- SUSE Linux Enterprise Server Edition 11 for x86\_64 (64-bit)

For additional information, support, certification, and versions of network operating systems, access

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

### **Compatibility**

Use with BladeCenter Blade Server systems. This expansion unit fits into select BladeCenter chassis.

For detailed information about IBM and non-IBM devices, adapters, software, and network operating systems supported with BladeCenter servers, visit

<http://www.ibm.com/servers/eserver/serverproven/compat/us/>

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

### **Limitations**

Use in BladeCenter chassis.

### **Planning information**

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#### **Customer responsibilities**

This product is designated as customer setup. Customer setup instructions are shipped with the product.

#### **Configuration information**

IBM BladeCenter GPU Expansion Blade must be installed in a BladeCenter chassis.

**Note:** Consult specific chassis announcements for more information on IBM BladeCenter GPU Expansion Blade.

#### **Cable orders**

No additional cables required.

#### **Installability**

Each IBM BladeCenter GPU Expansion Blade requires approximately 10 minutes for installation. Installation includes unpacking, setting up, and powering on the system.

### **Packaging**

#### **IBM BladeCenter GPU Expansion Blade**

Product	Package Description	Boxes
BladeCenter GPU Expansion Blade	BladeCenter GPU Expansion Blade Carton	1
	Contents:	
	BladeCenter GPU Expansion Blade	1
	Publications/CD Package	1

The IBM BladeCenter GPU Expansion Blade is shipped in a single package.

#### *Shipment group*

- BladeCenter GPU Expansion Blade
- BladeCenter GPU Expansion Blade installation guide
- Warranty information
- Safety flyer

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

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Security and auditability features include:

- A power-on password function helps provide control of who has access to the data
- Server setup program

It is the client's responsibility to ensure that the server is secure to protect sensitive data.

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**

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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.

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## **Terms and conditions**

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### ***Field installable feature***

Yes

### ***Warranty period***

One year

Service type (IOR/IOE/CCE/CCR): IOR

This feature or features assume the same warranty or maintenance terms as the machine in which it is installed for the remainder of the warranty or maintenance period for such machine.

### ***Customer setup***

Yes

### ***Machine code***

No license terms apply.

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## **Prices**

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For all local charges, contact your IBM representative.

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## Announcement countries

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All European, Middle Eastern, and African countries.

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