Appro *Hyper*Blade

A Smart Investment for Flexible, Modular and Scalable Blade Architecture Designed for High-Performance Computing.

Appro *Hyper*Blade clusters are flexible, modular scalable offering a high-density server architecture to address a wide range of Enterprise and High-Performance computing applications. This is an ideal solution for data center consolidation.

Appro *Hyper*Blade server supports the Intel® Xeon® processors 3000 series targeted for HPC only. These servers offer two boards per chassis nearly cutting the chassis and rack infrastructure cost in half. This cost-effective blade server delivers essential server-class features to reduce size, cost, power consumption and complexity. In addition it offers a small form factor board for high performance and high density computing applications enabling greatest system-level innovation, maximum flexibility, and value.

Appro *Hyper*Blade

- Mini-Cluster
- Mid-Cluster
- Full-Cluster
- Blade Server
- BladeDome Management

Appro *Hyper*Blade Cluster Features

- **Mini-Cluster:** Supports up to 17 *Hyper*Blade servers in a self-contained small rack cabinet.
- **Mid-Cluster:** Supports up to 50 *Hyper*Blade servers in a standard 19" 42U cabinet. It contains five sub-racks housing up to 10 *Hyper*Blade nodes in each sub-rack.
- **Full-Cluster:** Provides the highest density by supporting up to 80 *Hyper*Blade servers in a single cabinet. It contains five sub-racks housing up to 16 *Hyper*Blade nodes in each sub-rack.
- **BladeDome:** Appro BladeDome delivers cluster management functions, reduces IT complexity and improves administration efficiency while lowering the total cost of ownership.

Blade Features

- Two motherboards in one blade
- Supports two Dual or Quad core Intel® Xeon® processors
- Single, shared power supply
- Support two 3.5” SATA HDDs
- Up to 8GB per motherboard
- Simultaneous 32-bit/64-bit computing

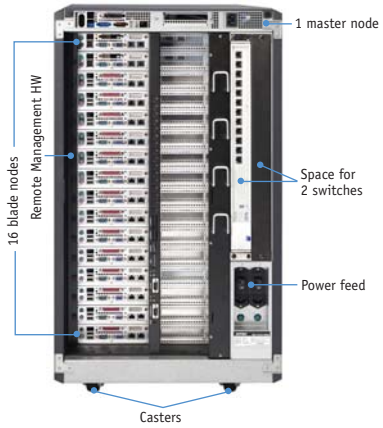
Appro *Hyper*Blade - Mini-Cluster Solution

The *Hyper*Blade Mini-Cluster is a fully integrated cluster solution supporting up to 17 blade servers including a master node. This is the ideal solution for customers who want to start small in a modular clustering computing environment. It provides cluster building block, perfect for scaling up to meet the demands of large computational simulations while conserving floor space.

Mini-Cluster Cabinet

- Space for one master node
- Front to rear air flow via three blowers
- Modular design
- Support for 17 *Hyper*Blade servers in a self-contained small rack cabinet
- Power: single 200-240 VAC, 30A, 50-60Hz single phase (NEMA L6-30)
- Locking casters with adjustable levelers
- Dimensions: 33.41"H x 19.0"W x 31.9"D
- Integrated PDU and circuit breakers
- Integrated cable management tray
- 2U additional space available
- Operating temperature: 10°C-35°C (50°F-95°F)
- Storage temperature: -40°C-70°C (-40°F-158°F)
- Humidity: 15% to 80% (relative)
- Rack mount, keyboard, KVM options
- BladeDome Cluster Management option
- High-speed interconnect options supported by Myrinet, Dolphin, Quadrics and InfiniBand™

Rear View



Appro *Hyper*Blade - Mid-Cluster Solution

The *Hyper*Blade Mid-Cluster is a great solution for customers who would like to continue with the standard 19" rack cabinet solution but are still concerned about space optimization in the data center. The Mid-Cluster supports up to 50 *Hyper*Blade servers in a standard 42U cabinet. It contains five sub-racks housing up to 10 *Hyper*Blade nodes in each sub-rack.

Standard Rack Cabinet

- Support for five sub-racks
- Power: single 200-240 VAC, 30A, 50-60Hz single phase (NEMA L6-30)
- Dimensions: 81.5"H x 23.5"W x 42.20"D (207.01cm H x 59.69cm W x 107.19cm D)
- Weight: 180.45Kg
- Operating temperature: 10°C-35°C (50°F-95°F)
- Storage temperature: 70°C max.
- Integration and consulting services available
- Exhaust cooling rack door option

Sub-Rack System

- Integrated power strip for blade server direct connections
- Integrated blade locking mechanism
- Supports five sub-racks housing up to 10 *Hyper*Blade nodes in each sub-rack
- Dimensions: 13.9"H x 19"W x 29.8"D (35.2cm H x 48.26cm W x 75.7cm D)

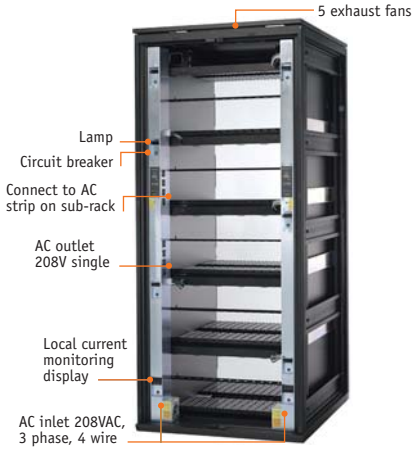
Appro *Hyper*Blade - Full-Cluster Solution

The *Hyper*Blade Full-Cluster provides outstanding performance and reliability for a broad range of enterprise and technical computing applications. With support for up to 80 blade servers in a custom rack cabinet, Appro *Hyper*Blade architecture doubles the current rack density using 1U servers.

Custom Rack Cooling Technologies: Appro engineers their own power supplies and offers superior cooling systems. A rear door cabinet exhaust cooling option provides improved cooling through smarter air flow management and reduces hot air in the data center.

Custom Cabinet

- All steel cabinet construct
- Integrated PDU and circuit breakers
- Local current monitoring display
- Overload circuit alarm
- Supports five sub-racks
- Dual 208V, 3-phase AC inlets
- Locking casters with adjustable levelers
- Integrated cable management tray
- 2U space for any 19" equipment
- Meshed rear French doors
- Dimensions: 83"H x 32"W x 38"D (210cm H x 85.4cm W x 100cm D)
- Operating temperature: 10°C- 5°C (50°F-95°F)
- Storage temperature: 70°C max.



Sub-Rack System

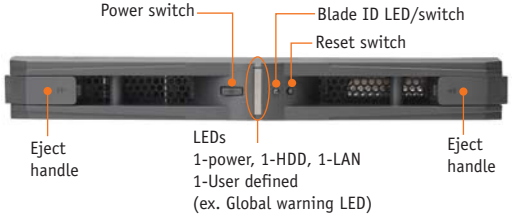
- Integrated power strip for blade server direct connections
- Integrated blade locking mechanism
- Can accommodate future blade plane design
- Full-Cluster supports five sub-racks housing up to 16 *Hyper*Blade nodes in each sub-rack
- 13.9"H x 27.3"W x 29.8"D (35.2cm H x 69.3cm W x 75.7cm D)

Appro *Hyper*Blade - Blade Server

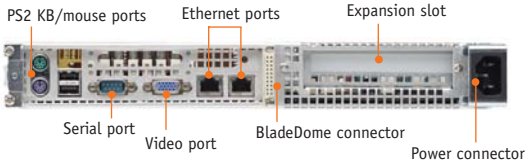
Compute Blades

- Integrated Direct Connect for BladeDome communication
- Room for two 3.5" standard HDDs
- Three blowers for cooling
- 1.67"H x 13.46"W x 27.9"D (4.2cm H x 34.2cm W x 68.8cm D)

Front View



Rear View



Note: Rear I/O varies by server model

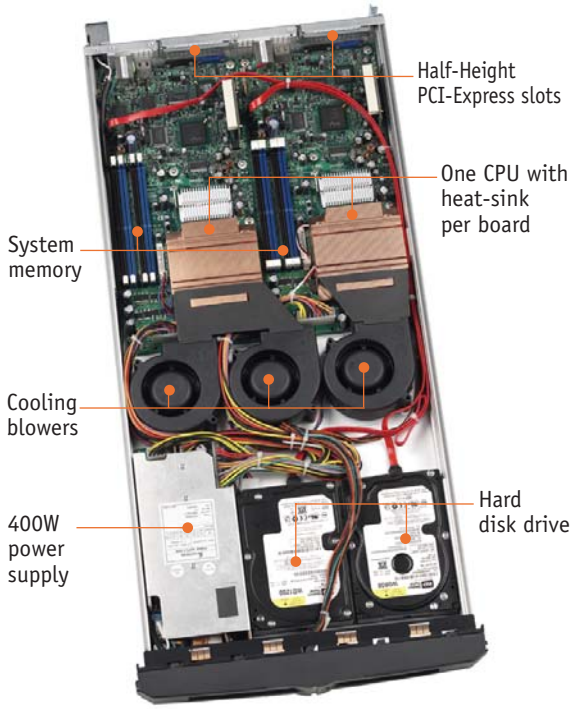
Intel® Xeon® Processor 3000 and 3200 Series

- Economical Dual-core and Quad-Core configuration delivering a quality, low-cost server solution
- Provides two or four execution cores in one physical processor, allowing higher throughput and simultaneous computing
- Intel® Extended Memory 64 Technology Processors (EM64T) allow platforms to access larger amounts of memory and support 64-bit extended operating systems
- Hyper-Threading Technology -Increases system response time by extending system performance beyond GHz operation

Appro *Hyper*Blade Technical Specification

	Intel® Xeon® 3000 Series
	Appro pB222D (Two system boards in one chassis)
Processors	Dual and Quad-Core Intel® Xeon® 3000 and 3200 Series
Chipset	Intel® 3000 memory controller hub (Mukilteo2) Intel® ICH7R I/O Controller
System Bus Frquency	533/800/1066MHz Front Side Bus
Memory Type	Unregistered, unbuffered DDR2 533/667
Memory Capacity	Up to 8GB in 4 DIMM sockets per systems board Total 16GB in 8 DIMM sockets per chassis
Disk Controller	Single channel ATA 100 controller, Integrated ICH7-R SATA controller
Drive Bays	Two SATA HDD bays
Storage Capacity	1.5TB SATA
Graphics	ATI ES1000 video controller
Network Interface	Intel® Dual Gigabit Ethernet controller (82573E+82573V)
Input/Output	One serial port, two USB ports VGA, keyboard/mouse port per system board
Riser Slot	One PCI-Express x8 slot
Power Supply	110-220VAC, auto-sensing, 400W single, fixed PS
AC Amperage	4.5A max. at 110VAC; 2.27A at 220VAC
Cooling	Three blowers
Weight	17 lbs. (7.7 kg)
Dimensions (HxWxD)	1.67" x 13.46" x 27.9" (4.2 x 34.2 x 68.8 cm)
Temperature	Operating: 10-35˚C, Storage: 70˚C Max.
Remote Server Mgmt	iAMT (Intel Active Management Technology)

Support: Two years standard warranty. On-site maintenance and installation service options are available.
Rapid Exchange Service Options: Two years warranty (next day parts replacement exchange).

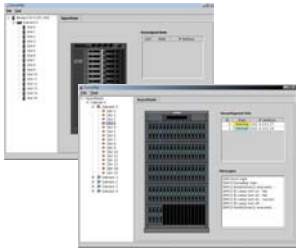


Appro BladeDome Cluster Management Solution

The BladeDome Management solution is an outstanding hardware and software monitoring and management tool that gives you in-depth visual status on all your hardware subsystems.

Status Summary

BladeDome Cluster Monitor is easy to set up and manage. Red, yellow and green lights indicate the health of your servers. This management tool lets you drill down into your hardware subsystems to check the status of each server.



Status Summary Screens

Failure Notifications

Send a customized e-mail that alerts specified individuals when operating conditions exceed predefined thresholds.

Remote Management Capability

Provides in-band-and out-of-band remote management capabilities. If a node falters or stops functioning, the system administrator is able to locally or remotely power up another node for load balancing.

Configuration and Server Admin Screens

Platform Monitoring

Thermal sensors continuously monitor system temperatures, fan-fail, over-temperature and voltage. The Power Status shows which servers are on and off. The Power Delay allows users to configure the sequence that power is turned on or off for each server in a cluster. This helps avoid power in-rush at start-up and allows users to predetermine which server will be turned on first.

Configuration and Server Admin

Remote Server Admin tools let you configure and monitor all key services of the *Hyper*Blade Server - locally or remotely. If you prefer using a terminal window, Server Admin provides extensive command line tools to configure, monitor and manage your systems remotely. Shell scripts can easily be built for customer management needs. If network services are down, BladeDome Admin tool is equipped with a serial port that lets administrators access the system through a serial console session.

Platform Monitoring Screen

Appro Blade Command Center - a unique cluster management appliance. It combines the functionalities of serial console server and intelligent power management PDU to provide both serial and power management capabilities in one unit. Integrated with Appro BladeDome Remote Management software, it provides node power control and platform monitoring. In addition, the Blade Command Center features a PCMCIA slot for enhanced functionality with support for many interface cards such as Ethernet, modem and wireless LAN.

Features

- Remotely manage up to thousands of blade servers
- Features PCMCIA slot for enhanced functionality
- Integrates with Remote Management Software for console and power management
- Security via user ID and password

Rear View

Technical Specification

Processors	50MHz MPC855T
Memory	64MB
Flash	8MB
Serial Interface	Two integrated RJ45 serial ports
Network Interface	One integrated 10/100bt Ethernet port
Expansion	One PCMCIA slot
Power	110-250VAC, auto-sensing, 43W single, fixed PS
Temperature	Operating: 5-50˚C, Storage: -4-66˚C
Dimensions (HxWxD)	1.325" x 6.5" x 9.5" (3.36 x 16.51 x 24.13 cm)
Weight	Installed: 10 lbs. (4.5kg), Shipping: 10 lbs. (4.5kg)