



Software  
Information  
Systems

The Talent Behind the Technology

Software Information Systems, LL  
NorthGate Business Park  
200 Association Drive  
Charleston, WV 25311  
[www.ThinkSIS.com](http://www.ThinkSIS.com)  
Tel: (304) 768-1645  
Fax: (304) 768-1671  
CharInfo@ThinkSIS.com

Ms. Krista Ferrell  
State of West Virginia  
Department of Administration  
Purchasing Division  
2019 Washington Street, East  
Charleston, West Virginia 25305-0130

September 18, 2006

Dear Ms. Ferrell

Please find enclosed Software Information Systems' response to RFQ ISCG0031.

Sincerely,

Charles D. Arnett  
Client Representative

Attachment



**State of West Virginia**  
**Department of Administration**  
**IS&C**  
**Charleston, West Virginia 25301**



RFQ ISCG0031 Bld Response

Quote: IS&CG0031  
9/18/2006

**NorthGate Business Park**  
**200 Association Drive**  
**Charleston, WV 25311-1268**  
**Att: Charles D. Arnett**  
**Phone: 304 768-1645 Fax: 304 768-1671**

Part Number	Description	Qty
88524XU	IBM BladeCenter™ H Chassis with 2x2900W Power Supplies	1
32R1888	IBM BladeCenter™ 4-port Cisco Systems Intelligent Gigabit Ethernet Switch Module	2
31R3335	IBM BladeCenter™ H 2900W AC Power Module Pair with Fan Packs	1
25R5783	IBM BladeCenter™ H Double 30A NEMA L6-30P (208V) 4.3M	2
30L9185	3 Year Onsite Repair 24x7 4 Hour Response (8677)	1
88435RU	HS20 Xeon EM64T 3.8GHz/800MHz 2MB L2, 2x512MB, O/Bay U320	7
13N0697	Processor upgrade - 1 x Intel Xeon 3.8 GHz ( 800 MHz ) - Socket 604 - L2 2 MB	7
73P3522	1GB (2x512MB Kit) PC2-3200 CL3 ECC DDR2 SDRAM	7
40K1038	73.4GB Non Hot-Swap 2.5" 10K RPM Ultra320 SCSI HDD	14
69P9518	3 Year Onsite Repair 24x7 4 Hour Response (8853)	7

**Purchase Price of Equipment - Including shipping and three (3) year all-inclusive warranty (A) \$44,000.00**

**Cost of two (2) year Post-Warranty maintenance agreement (B) \$7,000.00**

**(A) + (B) = \$51,000.00 Total 5-year cost of ownership to be used for evaluation**

96P2119	IBM ServicePacs for Post-warranty Maintenance Service (2 year IOR 24x7x4 hour) BladeCenter	1
96P2103	IBM ServicePacs for Post-warranty Maintenance Service (2 year IOR 24x7x4 hour) Bladecenter H HS20	7

Cost of two (2) year Post-Warranty maintenance agreement for BladeCenter H and 7 HS20 Blades: \$7,000.00



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

# Request for Quotation

RFQ NUMBER  
 ISCG0031

PAGE  
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF  
 KRISTA FERRELL  
 304-558-2596

RFQ COPY  
 TYPE NAME/ADDRESS HERE

VENDOR

Software Information Systems  
 200 Association Drive, Suite 210  
 Charleston, WV 25311

SHIP TO

DEPARTMENT OF ADMINISTRATION  
 IS&C - CHIEF FINANCIAL OFFICER  
 1 DAVIS SQUARE  
 CHARLESTON, WV  
 25301 304-558-5472

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/30/2006				
BID OPENING DATE: 09/18/2006		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		205-43		\$51,000
BLADE CHASSIS W/ BLADES  REQUEST FOR QUOTATION  THE WEST VIRGINIA PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ADMINISTRATION'S OFFICE OF TECHNOLOGY, IS SOLICITING BIDS TO PROVIDE THE AGENCY WITH AND IBM BLADE CHASSIS W/ BLADES (OR EQUAL). EQUIPMENT OTHER THAN IBM WILL BE CONSIDERED, BUT VENDOR MUST CERTIFY THEIR PRODUCT PROVIDES 100% OF ALL FEATURES AND FUNCTIONS OF THE IBM CHASSIS AND BLADES SERVERS AND MUST BE ABLE TO PROVIDE SEAMLESS INTEGRATION INTO OUR EXISTING IBM BLADE ENVIRONMENT. THE OFFICE OF TECHNOLOGY RESERVES THE RIGHT TO DETERMINE EQUIVALENCY ON ANY BIDS SUBMITTED.  WARRENTY PERIOD WILL BE ESTABLISHED BY CHANGE ORDER UPON THE INSTALLATION AND ACCEPTANCE OF THE PRODUCT BY THE AGENCY.  TECHNICAL QUESTIONS CONCERNING THIS RFQ MUST BE SUBMITTED IN WRITING TO KRISTA FERRELL IN THE WEST VIRGINIA PURCHASING DIVISION VIA EMAIL AT KFERRELL@WVADMIN.GOV OR VIA FAX AT 304-558-4115 NO LATER THAN 09/08/2006 AT 5:00 PM. QUESTIONS (IF ANY) RECEIVED BEFORE THE DEADLINE WILL BE ANSWERED BY ADDENDUM. QUESTIONS CONCERNING BID SUBMISSION MAY BE SUBMITTED AT ANY TIME AND IN ANY FORM.						
500 attached cost sheet						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Charles D. Arnett</i>	TELEPHONE 304 768-1645	DATE 9/18/2006
TITLE Chief Rep	FEIN 611087927	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS  
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125.00 registration fee.
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this contract is automatically null and void, and is terminated without further order.
14. **HIPAA Business Associate Addendum -** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

---

**INSTRUCTIONS TO BIDDERS**

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

**SIGNED BID TO:**

Department of Administration  
Purchasing Division  
2019 Washington Street East  
Post Office Box 50130  
Charleston, WV 25305-0130



State of West Virginia  
 Department of Administration  
 Purchasing Division  
 2019 Washington Street East  
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# Request for Quotation

RFQ NUMBER  
 ISCG0031

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ADDRESS CORRESPONDENCE TO ATTENTION OF:  
 KRISTA FERRELL  
 304-558-2596

VENDOR

RFQ COPY  
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SHIP TO

DEPARTMENT OF ADMINISTRATION  
 IS&C - CHIEF FINANCIAL OFFICER  
 1 DAVIS SQUARE  
 CHARLESTON, WV 25301 304-558-5472

DATE PRINTED 08/30/2006	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
BID OPENING DATE: 09/18/2006		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p>THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4 (F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.</p> <p>VENDOR PREFERENCE CERTIFICATE</p> <p>CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE, 5A-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS).</p> <p>A. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>( ) BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>( ) BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-QUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY I</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'



State of West Virginia  
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DEPARTMENT OF ADMINISTRATION  
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 1 DAVIS SQUARE  
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<p>WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR 80% OF THE OWNERSHIP INTEREST OF BIDDER IS HELD BY ANOTHER INDIVIDUAL, PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR WHO HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>( ) BIDDER IS A CORPORATION NONRESIDENT VENDOR WHICH HAS AN AFFILIATE OR SUBSIDIARY WHICH EMPLOYS A MINIMUM OF ONE HUNDRED STATE RESIDENTS AND WHICH HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA CONTINUOUSLY FOR THE FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION.</p> <p>B. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>( ) BIDDER IS A RESIDENT VENDOR WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES WORKING ON THE PROJECT BEING BID ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID;</p> <p>OR</p> <p>( ) BIDDER IS A NONRESIDENT VENDOR EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS OR IS A NONRESIDENT VENDOR WITH AN AFFILIATE OR SUBSIDIARY WHICH MAINTAINS ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES OR BIDDERS' AFFILIATE'S OR SUBSIDIARY'S EMPLOYEES ARE RESIDENTS OF WEST VIRGINIA</p>						

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# Request for Quotation

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 ISCG0031

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ADDRESS CORRESPONDENCE TO ATTENTION OF  
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VENDOR

STATE

DEPARTMENT OF ADMINISTRATION  
 IS&C - CHIEF FINANCIAL OFFICER  
 1 DAVIS SQUARE

CHARLESTON, WV  
 25301 304-558-5472

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<p>WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID.</p> <p>BIDDER UNDERSTANDS IF THE SECRETARY OF TAX &amp; REVENUE DETERMINES THAT A BIDDER RECEIVING PREFERENCE HAS FAILED TO CONTINUE TO MEET THE REQUIREMENTS FOR SUCH PREFERENCE, THE SECRETARY MAY ORDER THE DIRECTOR OF PURCHASING TO: (A) RESCIND THE CONTRACT OR PURCHASE ORDER ISSUED; OR (B) ASSESS A PENALTY AGAINST SUCH BIDDER IN AN AMOUNT NOT TO EXCEED 5% OF THE BID AMOUNT AND THAT SUCH PENALTY WILL BE PAID TO THE CONTRACTING AGENCY OR DEDUCTED FROM ANY UNPAID BALANCE ON THE CONTRACT OR PURCHASE ORDER.</p> <p>BY SUBMISSION OF THIS CERTIFICATE, BIDDER AGREES TO DISCLOSE ANY REASONABLY REQUESTED INFORMATION TO THE PURCHASING DIVISION AND AUTHORIZES THE DEPARTMENT OF TAX AND REVENUE TO DISCLOSE TO THE DIRECTOR OF PURCHASING APPROPRIATE INFORMATION VERIFYING THAT BIDDER HAS PAID THE REQUIRED BUSINESS TAXES, PROVIDED THAT SUCH INFORMATION DOES NOT CONTAIN THE AMOUNTS OF TAXES PAID NOR ANY OTHER INFORMATION DEEMED BY THE TAX COMMISSIONER TO BE CONFIDENTIAL.</p> <p>UNDER PENALTY OF LAW FOR FALSE SWEARING (WEST VIRGINIA CODE 61-5-3), BIDDER HEREBY CERTIFIES THAT THIS CERTIFICATE IS TRUE AND ACCURATE IN ALL RESPECTS; AND THAT IF A CONTRACT IS ISSUED TO BIDDER AND IF ANYTHING CONTAINED WITHIN THIS CERTIFICATE CHANGES DURING THE TERM OF THE CONTRACT, BIDDER WILL NOTIFY THE PURCHASIN DIVISION IN WRITING IMMEDIATELY.</p> <p>BIDDER: -----</p>						

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# Request for Quotation

RFO NUMBER  
 ISCG0031

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ADDRESS CORRESPONDENCE TO ATTENTION OF:  
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DEPARTMENT OF ADMINISTRATION  
 IS&C - CHIEF FINANCIAL OFFICER  
 1 DAVIS SQUARE  
 CHARLESTON, WV  
 25301 304-558-5472

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
08/30/2006				
BID OPENING DATE: 09/18/2006		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>DATE: -----</p> <p>SIGNED: -----</p> <p>TITLE: -----</p> <p>* CHECK ANY COMBINATION OF PREFERENCE CONSIDERATION(S) IN EITHER "A" OR "B", OR BOTH "A" AND "B" WHICH YOU ARE ENTITLED TO RECEIVE. YOU MAY REQUEST UP TO THE MAXIMUM 5% PREFERENCE FOR BOTH "A" AND "B". (REV. 12/00)</p> <p>NOTICE</p> <p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION          PURCHASING DIVISION          BUILDING 15          2019 WASHINGTON STREET, EAST          CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: 21</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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State of West Virginia  
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# Request for Quotation

RFQ NUMBER  
 ISCG0031

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ADDRESS CORRESPONDENCE TO ATTENTION OF:  
 KRISTA FERRELL  
 304-558-2596

VENDOR

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DEPARTMENT OF ADMINISTRATION  
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CHARLESTON, WV  
 25301 304-558-5472

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BID OPENING DATE: 09/18/2006 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
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RFQ. NO. : ISCG0031  
 BID OPENING DATE: 08/18/2006  
 BID OPENING TIME: 1:30 PM

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:

*304 768-1671*

CONTACT PERSON (PLEASE PRINT CLEARLY):

*Charles D. Arnett*

\*\*\*\*\* THIS IS THE END OF RFQ ISCG0031 \*\*\*\*\* TOTAL:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
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TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE
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WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

## WV Office of Technology

The Purchasing Division of the WV Department of Administration, for the WV Office of Technology (WVOT), is requesting quotations from qualified vendors for the purchase, along with a 36-month warranty contract, provision inclusive of travel or any other expenses, for an IBM Blade Chassis with Blades or equal. Equipment other than IBM will be considered, but vendor must certify their product provides 100% of ALL features and functions of IBM chassis and blades servers and must be able to provide seamless integration into our existing IBM blade environment. The Office of Technology reserves the right to determine equivalency on any bids submitted.

No separate reimbursement will be made to the vendor for travel or any other expense. Quotations must include ALL costs associated with the requested hardware.

## DESCRIPTION OF SERVICES REQUESTED

## 1. GENERAL INFORMATION

## 1.1 Overview of Request

The purpose of this Request for Quotation is to provide a blade chassis and blade servers needed for the Office of Technology's server consolidation site. This RFQ is for hardware and warranty only no installation services are required.

## 1.2 Current Environment

The WVOT has been charged with consolidating IT equipment and services for the Executive Branch of State Government. The Client Services section has determined that blade servers and chassis is an important hardware component of this project.

## 2. PROCUREMENT SPECIFICATIONS

## 2.1 Scope of Work

The WV Office of Technology intends to acquire a blade chassis and blades as specified below:

2.1.1. One IBM H Chassis Blade Center with 7 blades or equal as specified in Attachment 1

2.1.2 Vendor must bid the requested parts as specified in Attachment 1. If replacement part numbers are bid please submit documentation from IBM stating that these are the replacement part numbers.

2.1.3 Vendor must identify special electrical needs. - *see attached* -

- 2.14 The vendor shall give WVOT a minimum of 48 hours notice prior to the equipment arriving at our location. This will allow WVOT to prepare space for the storage of the equipment.
- 2.15 The successful vendor will deliver equipment at the Capitol Complex location during normal business hours, Monday through Friday, 8:00 a.m. to 5:00 p.m. However, the successful vendor shall notify WVOT at least 48 hours in advance of the equipment arriving at the site, as to when to expect the equipment. Delivery shall be "inside" delivery at a location designated or specified by WVOT personnel. Equipment shall not be left at the loading dock or other common drop-off point. Delivery address is WV Office of Technology, Attn: Rita Fernatt, 1900 Kanawha Boulevard, East, Capitol Complex, Building 6, Room B-148, Charleston, WV 25305.

## 2.2 Maintenance/Warranty

- 2.2.1 The successful vendor must provide original equipment manufacturers (IBM) three-year warranty for all licensed software and hardware, regardless of the manufacturer's warranties. The cost of the three-year warranty will be included in the purchase price listed as item A on Attachment 2. Cost, if any, associated with warranty service must be indicated in the pricing tables and must include all parts, labor, hardware and software upgrades, software Help Desk services, travel or any other expense. No separate reimbursement will be made to the vendor for any expenses.
- 2.2.2 The warranty shall include on-site hardware service with a four (4) hour response time, 7 days a week, 24 hours per day.
- 2.2.3 The successful vendor must also quote an additional 2 year maintenance agreement to begin after the initial three (3) year warranty period to include hardware and software upgrades. This must be billed monthly in arrears.
- 2.2.4 Any maintenance performed by a third party is solely the successful vendor's responsibility. The vendor must be the Agency's single point of contact. The vendor should provide a list of third parties that will be involved in this procurement.
- 2.2.5 The successful vendor must provide all upgrades during the warranty period at no additional cost to the warranty quote.

## 2.3 ACCEPTANCE

- 2.3.1 WV Office of Technology shall verify all requirements have been delivered as described under this RFQ.
- 2.3.5 The State shall have full and free use of all systems, products, and/or deliverables supplied by this contract.

### 3. COST QUOTATION FORMAT/BID SHEETS

#### 3.1 Vendor Response

- 3.1.1 Vendors shall complete the Cost Sheet (Attachment 2) that is included in the RFQ in order to be considered for award of this contract.
- 3.1.2 A vendor not completing the above items, either in whole or in part, may be disqualified for consideration.
- 3.1.3 If the successful vendor fails to identify any charges for services that are required to meet the terms and conditions of this Quotation, it will be the responsibility of the successful vendor to pay these charges and such cost shall not be passed on to the State.
- 3.1.4 The vendor will not be reimbursed for travel or any other expense. These costs must be included in the purchase price.

#### 3.2 Cost Evaluation

- 3.2.1 The successful vendor shall be the vendor with the lowest purchase price of the equipment, including shipping, three (3) year all-inclusive warranty and additional 2 year maintenance warranty. This cost evaluation formula is spelled out on the Cost Sheet in Attachment 2.

#### 3.3 Terms and Conditions

- 3.3.1 The Vendor is solely responsible for all work performed under this contract and shall assume prime contractor responsibility for all services offered and products to be delivered under the terms of this contract.
- 3.3.2 The vendor must define in their bid response any subcontractors who will be used to complete the requirements of this RFQ. Vendor shall include the name of the company, contact person and telephone number, type of work subcontractor will perform, and number of certified employees to perform work.

Attachment1 - Blade Chassis and Blade Specifications

Qty	Product Code	Description
1	88524XU	
	<b>Product Description</b>	IBM eServer BladeCenter H 8852 - rack-mountable - 9 U
	<b>Form Factor</b>	Rack-mountable - 9 U
	<b>Dimensions (WxDxH)</b>	19 in x 30.2 in x 15.7 in
	<b>Weight</b>	103.6 lbs
	<b>Color</b>	Stealth black
	<b>Built-in Devices</b>	LED panel, DVD-ROM drive, remote management adapter
	<b>I/O Connectors</b>	1 x display / video - VGA $\hat{A}$ 4 x Hi-Speed USB $\hat{A}$ 1 x serial $\hat{A}$ 1 x management - Ethernet 10/100 $\hat{A}$ 1 x network
	<b>Installed Fans Qty</b>	2
	<b>Power Device</b>	Power supply - hot-plug

**Power Redundancy** Yes  
**Voltage Required** AC 120/230 V ( 60/60 Hz )

**Manufacturer Warranty** 3 years warranty

Qty	Product Code	Description
<del>2</del>	<del>13N2281</del>	
	232R1988	
	<b>Product Description</b>	Cisco Systems Intelligent Gigabit Ethernet Switch Module - switch - 4 ports
	<b>Device Type</b>	Switch
	<b>Form Factor</b>	Plug-in module
	<b>Dimensions (WxDxH)</b>	10.2 in x 1.1 in x 4.4 in
	<b>RAM</b>	32 MB
	<b>Flash Memory</b>	8 MB
	<b>Ports Qty</b>	4 x Ethernet 10Base-T, Ethernet 100Base-TX, Ethernet 1000Base-T
	<b>Data Transfer Rate</b>	1 Gbps
	<b>Data Link Protocol</b>	Ethernet, Fast Ethernet, Gigabit Ethernet
	<b>Remote Management Protocol</b>	SNMP 3
	<b>Features</b>	IGMP snooping, Broadcast Storm Control
	<b>Compliant Standards</b>	IEEE 802.1D, IEEE 802.1Q, IEEE 802.1p, IEEE 802.3ad (LACP), IEEE 802.1w, IEEE 802.1x, IEEE 802.1s
	<b>Manufacturer Warranty</b>	3 years warranty

1 31R3335

011

**Product Description** IBM power supply - hot-plug  
**Device Type** Power supply - hot-plug  
**Form Factor** Plug-in module  
**Manufacturer Warranty** 1 year warranty

Qty Product Code Description  
 2 25R5783

**Product Description** IBM power cable (200-240 VAC) - 14 ft  
**Type** Power cable (200-240 VAC)  
**Length** 14 ft  
**Connector(s)** 2 x power NEMA L6-30 - male

1 30L9185 3YR ONSITE REPAIR 24X7X4 HOUR LINKED TO ALL SERVPACS

Qty Product Code Description  
 7 88435RU

**Product Description** IBM eServer BladeCenter HS20 8843 - Xeon 3.8 GHz  
**Type** Server  
**Form Factor** Blade  
**Dimensions (WxDxH)** 1.1 in x 17.6 in x 9.6 in  
**Localization** English / United States  
**Server Scalability** 2-way  
**Processor** 1 x Intel Xeon 3.8 GHz  
**Processor Main Features** Intel Extended Memory 64 Technology  
**Cache Memory** 2 MB L2 cache  
**Cache Per Processor** 2 MB  
**RAM** 1 GB (installed) / 16 GB (max) - DDR II SDRAM - ECC - 400 MHz - PC2-3200  
**Storage Controller** SCSI ( Ultra320 SCSI ) - PCI-X / 100 MHz ( LSI53C1020 )  
**Hard Drive** - none.  
**Monitor** None.  
**Graphics Controller** ATI Radeon 7000M - 16 MB  
**Networking** Network adapter - Ethernet, Fast Ethernet, Gigabit Ethernet  
**Manufacturer Warranty** 3 years warranty

7 13N0697 3.8GHz 800MHz 2MB L2 Cache / 13.3GB

012

Qty Product Code Description

7 73P3522

**Product Description** IBM memory - 1 GB ( 2 x 512 MB ) - DIMM 240-pin - DDR II

**Storage Capacity** 1 GB ( 2 x 512 MB )

**Technology** DDR II SDRAM

**Form Factor** DIMM 240-pin

**Memory Speed** 400 MHz ( PC2-3200 )

**Data Integrity Check** ECC

**Features** Registered

**Lead Plating** Gold

**Manufacturer Warranty** 1 year warranty

Qty Product Code Description

14 40K1038

**Product Description** IBM hard drive - 73.4 GB - Ultra320 SCSI

**Type** Hard drive - Internal

**Form Factor** 2.5" Slim Line

**Capacity** 73.4 GB

**Interface Type** Ultra320 SCSI

**Data Transfer Rate** 320 MBps

**Average Seek Time** 4.7 ms

**Spindle Speed** 10000 rpm

**Buffer Size** 8 MB

**Manufacturer Warranty** 1 year warranty

Qty Product Code Description

7 69P9518 SVCPAC SVR 3YR IOR 24X7 4 HOUR LINKED TO ALL SERVPACS

Attachment 2 – Cost Sheet

Purchase Price of Equipment – including shipping and three (3) year all-inclusive warranty

(A) \$ 44,000.00

Cost of two (2) year post-warranty maintenance agreement

(B) \$ 7,000.00

(A) + (B) = \$ 51,000.00 Total 5-year cost of ownership to be used for evaluation



**A F F I D A V I T**014**West Virginia Code §5A-3-10a states:**

No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owned is an amount greater than one thousand dollars in the aggregate.

**DEFINITIONS:**

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions.

"Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

**EXCEPTION:**

The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

**LICENSING:**

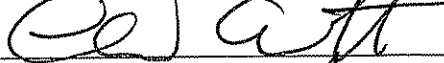
The vendor must be licensed in accordance with any and all state requirements to do business with the state of West Virginia.

**CONFIDENTIALITY:**

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit [www.state.wv.us/admin/purchase/privacy](http://www.state.wv.us/admin/purchase/privacy) for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: Software Integration Systems, LLC

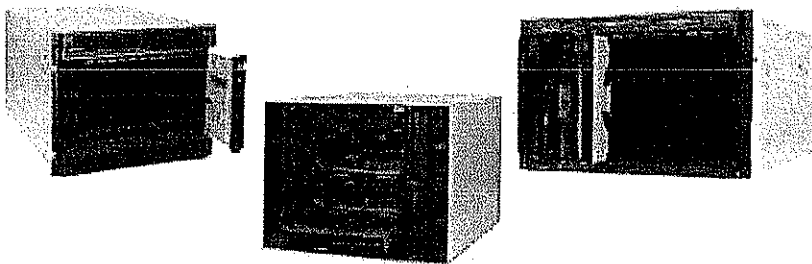
Authorized Signature:  Date: 9/18/2006

Charles D. Arnold

*Innovative modular technology achieves outstanding performance density and affordable availability*



## IBM BladeCenter solutions



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### Highlights

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- ***Flexible modular technology integrates powerful dual-core Intel®, IBM POWER™ and two new AMD Opteron processor-based blade servers into the IBM BladeCenter® architecture***
- ***Choice of three BladeCenter chassis to match diverse environments and performance requirements***
- ***Take advantage of advanced management tools like IBM Director software, enabling comprehensive management of the BladeCenter solution***

Your priorities are clear: Contain costs, deal with a shortage of skilled people and meet the challenge of today's on demand business. In short, manage the components of your IT organization or communications network so they contribute to business success in today's on demand world.

#### **Take control of your infrastructure**

Tackle your IT complexity with BladeCenter. Its design gathers computing resources into high-density enclosures that support hot-swappable, high-performance 2-processor Intel processor-based and 2-processor POWER and new 2-processor and 4-processor AMD Opteron-based blade servers.

BladeCenter simplifies by bringing together your network and storage switching into a single enclosure, and then ties it all together with unified, powerful solution management tools. The result is an effectively managed infrastructure that helps maximize resource productivity and minimize IT and network administration costs. BladeCenter gives control back to the IT or network manager.

#### **On demand ready**

BladeCenter helps businesses be responsive to customers, focused on core competencies, variable to adapt to cost structures flexibly and resilient to face any challenge.

#### **Designed to solve real-world problems**

The BladeCenter design addresses your most serious issues: Manageability, scalability, capacity, performance, cooling, power and space constraints. IBM blade servers are designed to take less time to install and fewer people to maintain, helping reduce IT infrastructure costs.

**Visit**

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**ibm.com** to locate an IBM reseller or for more information.

Your enterprise or network can benefit from simplified management, fast installation, modular scalability and high availability. And BladeCenter delivers improved space efficiency compared to most 1U solutions.

#### **Collaborate to innovate**

IBM has opened the design specifications for BladeCenter allowing other companies to easily design compatible networking switches, blade adapter cards (daughter cards) and appliance and communications blades for the platform. The open BladeCenter design specifications are intended to harness the development power of the industry and deliver an even more comprehensive solution to customers.

BladeCenter solutions make adding capacity simple, affordable and cost-effective. BladeCenter's technology features deliver an effective scale-out architecture that enables quick response to changing business conditions.

- **Outstanding blade density**  
*BladeCenter efficiently uses data center floor space with up to 14 2-processor blades or up to 7 4-processor blades in a BladeCenter chassis. The design features innovative I/O technology and cutting-edge processor technology.*

- **Affordable availability for mission-critical applications**  
*The three BladeCenter chassis feature high-availability passive mid-planes and redundant hot-swap cooling and power, helping to reduce single points of failure. Tight integration of key components such as networking services, centralized management and applications help to enable high availability.*

#### **The BladeCenter ecosystem**

The three BladeCenter chassis—the new BladeCenter H, BladeCenter and BladeCenter T—continue the legacy of open, cross-functional design. That means all BladeCenter chassis support all blades, switches and ecosystem components—providing investment protection and reducing obsolescence.

BladeCenter H, the newest member of the BladeCenter family, offers a host of new features and functionality, making it the ideal platform to run your next-generation, high-performance business-critical applications.

For rich telecom features and functionality, the BladeCenter T 20" deep NEBS-/ETSI-compliant chassis is ideal for deployment of next-generation networks in central offices or data center environments.

#### **Application flexibility**

BladeCenter architecture is based on industry standards to support deployment of third-party software and hardware. IBM works with industry-leading technology companies to support innovative solutions running on Linux®, Windows®, IBM AIX®, Novell and Sun Solaris operating systems.

BladeCenter can take advantage of the flexibility provided by the Linux operating system. Linux offers power, high security and reliability for business and infrastructure applications.

BladeCenter supports the Microsoft® Windows Server™ 2003 and Windows 2000 operating systems (model dependent), enabling customers to migrate existing or deploy new Windows environments on this platform. The unique advantages offered by BladeCenter combined with the broad array of applications supported on Windows deliver a valuable proposition for customers.

#### **Empower your IT**

The BladeCenter Advanced Management Module boosts administrator productivity and reduces skill-level requirements, which can help reduce costs, improve overall productivity and make administration easier. It delivers incredible control of the solution. Unlike traditional servers and some competitive blades with a myriad of separate management tools, the management module provides a single point of control for the solution.

With the tight integration of storage, networking, servers and applications, the BladeCenter design is both intelligent and simple. IBM has created an ideal environment to maintain your data center.

#### **Powerful management tools**

IBM Director delivers advanced, proactive management, providing rich and broad systems management capabilities. Some of the IBM Director tools include:

- **Capacity Manager (optional)**  
*Helps predict future server bottlenecks and proactively alerts administrators, automating corrective actions to minimize downtime.*
- **System Availability**  
*Tracks and provides graphical views of system downtime or uptime for systems or groups of systems, helping save labor costs.*
- **Rack Manager**  
*Provides a graphical drag-and-drop interface that simplifies rack hardware management.*
- **Power Executive**  
*Provides accurate detail about power usage, empowering customers to take charge of their power and cooling requirements.*

#### **- IBM Predictive Failure Analysis® and light path diagnostics**

*Help reduce administration costs while increasing availability.*

IBM Director unleashes the power of BladeCenter, giving you comprehensive remote management from a single graphical console. IBM Director automates and simplifies IT and networking tasks, letting you deploy, configure, manage and maintain up to hundreds of blade servers.

Visit [ibm.com/servers/eserver/xseries/systems\\_management/index.html](http://ibm.com/servers/eserver/xseries/systems_management/index.html) for more information about IBM Director.

#### **BladeCenter options**

These options provide choices to help create customized solutions.

#### **Blade server options<sup>1</sup>**

**High-speed interconnect expansion cards**  
Myrinet and Cisco InfiniBand HCA expansion card options provide a high-speed/low-latency interconnect on each blade.

**Gigabit Ethernet Expansion Card**

Allows expansion of the Ethernet subsystem to enable more bandwidth.

**2Gb and 4Gb dual-port Fibre Channel (FC) Expansion Cards**

Adds dual-port FC HBAs for each blade server. These cards work with any of the SAN and FC Switch Modules listed here.

**QLogic iSCSI Expansion Card**

Acts as a hardware initiator to provide iSCSI communication from the blade server to an iSCSI storage device.

**SCSI or SAS Hard Disk Drives (HDDs)**

Achieve maximum blade density with Small Form Factor SCSI or SAS HDDs. Additional hot-swap HDDs are supported via the BladeCenter Storage Expansion Units.

**BladeCenter Storage Expansion Units**

These options provide integrated mirroring capabilities and use hot-swap Ultra320 SCSI or SAS HDDs, along with additional I/O content. The SAS version provides RAID-5 and battery-backed optional cache.

**PCI I/O Expansion Unit**

Each unit connects to an HS20 (model dependent), supporting up to two legacy 100-133 MHz PCI-X adapters.

**Blade chassis options<sup>1</sup>****Cisco Systems Intelligent Gigabit Ethernet Switch Modules**

The Cisco Ethernet switch modules provide four external copper or fiber Gigabit Ethernet ports and 14 internal Gigabit Ethernet ports interfacing via the BladeCenter midplane to the blade servers.

**Nortel Gigabit Ethernet Switch Modules**

The Layer 2-7 Switch Module integrates advanced Ethernet functionality into the chassis, reducing complexity and increasing manageability. The new Layer 2/3 10Gb switch provides line-speed bandwidth to meet your application requirements without compromising data integrity.

**Server Connectivity Module**

This low-cost, simple to configure switch is ideal for small and medium businesses.

**Copper Pass-thru Module**

Features a 1Gb unswitched, unblocked bidirectional copper Ethernet connection to each blade server.

**Brocade 2Gb and 4Gb Switch Modules**

These switch modules are ideal for integration into Brocade environments.

**McDATA 2Gb and 4Gb SAN Switch Modules**

The 2Gb and 4Gb switches are ideal for integration into McDATA environments.

**QLogic 2Gb and 4Gb FC Switch Modules**

These switches are interoperable in SCSW3-compliant SANs.

**Optical Pass-thru Module**

Features an unswitched, unblocked optical connection to each blade server bay.

**Cisco InfiniBand Switch Modules**

Integrates InfiniBand connectivity directly into the BladeCenter chassis, including options for 1X and 4X connectivity to the blade.

**Redundant Management Modules**

Enable system management resiliency and provide remote management and connectivity to the BladeCenter chassis for the most critical applications.<sup>2</sup>

**Power Supply Modules**

Provide both power and redundancy, bringing greater reliability and availability.

**Acoustic Attenuation Module**

Helps minimize audio emissions, an ideal solution for sound-sensitive customers.

BladeCenter options	Part number
<b>Ethernet Switches</b>	
Cisco Systems Intelligent Gigabit Ethernet Switch Module	32R1892
Cisco Systems Intelligent Gigabit Fiber Ethernet Switch Module	32R1888
Nortel Layer 2/3 10Gb Uplink Ethernet Switch Module	32R1783
Nortel Layer 2/3 Copper Gigabit Ethernet Switch Module	32R1860
Nortel Layer 2/3 Fiber Gigabit Ethernet Switch Module	32R1861
Nortel Layer 2-7 Gigabit Ethernet Switch Module	32R1859
Gigabit Ethernet Expansion Card	73P9030
SFF Gigabit Ethernet Expansion Card	39R8624
Server Connectivity Module	39Y9324
Myrinet Cluster Expansion Card	73P6000
Copper Pass-thru Module	39Y9316
Optical Pass-thru Module	39Y9320
Optical Pass-thru Module SC Cable	39Y9171
Optical Pass-thru Module LC Cable	39Y9172

BladeCenter options	Part number
<b>Fibre Channel Switches</b>	
Brocade 20-port 4Gb SAN Switch Module	32R1812
Brocade 10-port 4Gb SAN Switch Module	32R1813
Brocade 10-port 4Gb SAN Switch upgrade	32R1822
McDATA 10-Port 4Gb FC Switch Module	32R1905
McDATA 20-Port 4Gb FC Switch Module	32R1833
QLogic 10-Port 4Gb FC Switch Module	32R1904
QLogic 20-Port 4Gb FC Switch Module	26R0881
QLogic/McDATA 10-Port Switch Upgrade	32R1912
QLogic 4Gb Standard FC Expansion Card	26R0884
QLogic 4Gb SFF FC Expansion Card	26R0890
SFF Fibre Channel Expansion Card (2Gb)	26K4841
QLogic iSCSI Expansion Card	32R1923
Cisco InfiniBand Switch Module	32R1900
Cisco HCA Expansion Card	32R1896
36GB SFF Non-Hot-Swap Ultra320 SCSI HDD	40K1037
73GB SFF Non-Hot-Swap Ultra320 SCSI HDD	40K1038

BladeCenter options	Part number
36GB 10,000rpm SAS non-hot-swap hard disk drive	26K5776
73GB 10,000rpm SAS non-hot-swap hard disk drive	26K5777
BladeCenter Advanced Management Module	25R5778
2000W Power Supply Module	39M4675
Acoustic Attenuation Module	39M4674
PCI Expansion Unit II	25K8373
BladeCenter Storage Expansion Unit 2	39R8625

### Support for IBM System Storage™ solutions

BladeCenter supports high-performance SAN solutions and low-cost network attached storage solutions, delivering great flexibility and scalability for your storage needs. Connecting BladeCenter to the IBM System Storage DS™ family of products is an ideal solution.

### For more information

#### World Wide Web

U.S.

[ibm.com/systems/bladecenter](http://ibm.com/systems/bladecenter)

Canada

[ibm.com/systems/ca/en/bladecenter](http://ibm.com/systems/ca/en/bladecenter)

## BladeCenter chassis at a glance

	BladeCenter	BladeCenter T	BladeCenter H
<b>Year introduced</b>	2002	2004	2006
<b>Rack form factor</b>	7U	8U	9U
<b>Blade bays</b>	14	8	14
<b>Standard media</b>	DVD-ROM, floppy	DVD-ROM, floppy	DVD-ROM
<b>Number of switch fabrics</b>	Up to 4	Up to 4	Up to 4 legacy, up to 4 high speed and up to 4 bridge modules
<b>Power supply module</b>	2000W AC	1300W AC or 1300W DC	2900W AC
<b>Thermal design</b>	Two hot-swap blowers	Four hot-swap blowers	Two hot-swap blowers plus up to 12 hot-swap fans
<b>Systems management controller</b>	Up to two Advanced Management Modules	Up to two BCT Advanced Management Modules	Up to two Advanced Management Modules
<b>NEBS-/ETSI-compliant</b>	No	Yes	No
<b>4X InfiniBand, 10Gb Ethernet capability (internal)</b>	No	No	Yes
<b>External I/O ports</b>	KVM, Ethernet, USB, Serial		
<b>Systems management software</b>	IBM Director with systems management and trial deployment tools		
<b>Predictive Failure Analysis</b>	Hard disk drives, processors, blowers, memory		
<b>Light path diagnostics</b>	Blade server, processor, memory, power supplies, blowers, switch module, management module, hard disk drives and expansion card		
<b>Limited warranty*</b>	3-year onsite limited warranty		
<b>External storage</b>	Support for IBM System Storage solutions		

### BladeCenter servers

With the arrival of the new scalable AMD Opteron LS41 and LS21 server blade solutions, customers can expand from 2-socket to 4-socket and back as their requirements change—providing on demand flexibility. In addition, BladeCenter supports the IBM BladeCenter HS21 and HS20,

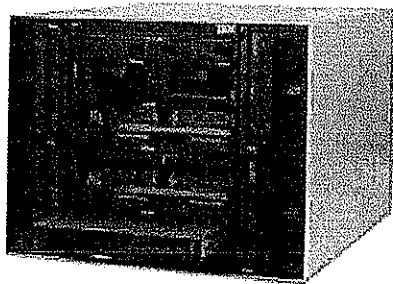
blade servers with up to two high-performance Intel Xeon® Processors; and the IBM BladeCenter JS20 and JS21, both IBM PowerPC® 970 processor-based blade servers.

The family of IBM blade servers is designed to support a wide variety of applications that customers demand in

today's business world. These blade servers are ideal for applications ranging from collaboration, Citrix, Linux clusters and compute-centric applications to commerce transactions, databases, ERP/CRM applications and next-generation network applications.

At a glance	IBM BladeCenter HS21	IBM BladeCenter HS20
<b>Processor</b>	Dual-Core Intel Xeon Processor up to 3.00 GHz	Intel Xeon up to 3.8 GHz
<b>Number of processors (std/max)</b>	1/2	
<b>Cache (max)</b>	4MB L2 shared	2MB
<b>Front-side bus</b>	Up to 1333 MHz	Up to 800 MHz
<b>Memory</b>	Up to 32GB Fully Buffered DIMMs	Up to 16GB PC2-3200 DDR II
<b>Internal hard disk drives</b>	Up to two Small Form Factor (2.5") 10,000rpm SAS HDDs installed on each blade	Up to 2 Ultra320 SCSI HDDs installed on each blade
<b>Maximum internal storage</b>	367GB (with optional Storage and I/O blade)	746.8GB (with optional BladeCenter Storage Expansion Unit 2)
<b>RAID support</b>	Integrated RAID-0 or -1 standard on blade server, Integrated RAID-1E or RAID-5 optional with Storage and I/O blade	Integrated RAID-1 standard on blade server, integrated RAID-1E with BladeCenter Expansion Unit 2 option (on select blades)
<b>Network</b>	Dual Gigabit Ethernet (TOE enabled)	Dual Gigabit Ethernet
<b>I/O upgrade</b>	1 PCI-X expansion card connection (traditional) and 1 PCI-Express (high speed)	1 expansion card connection
<b>Systems management hardware</b>	Integrated systems management processor	

At a glance	AMD Opteron LS21 for IBM BladeCenter	AMD Opteron LS20 for IBM BladeCenter
<b>Processor</b>	AMD Opteron Model 2212, 2212HE, 2216HE and 2218	AMD Opteron Model 250, 252, 254, 270 and 275
<b>Number of processors (std/max)</b>	1/2	Up to 2 single- or dual-core
<b>Cache (max)</b>	1MB L2 per processor core	
<b>Memory</b>	Up to 32GB DDR II VLP memory	Up to 16GB DDR VLP memory
<b>Internal hard disk drives</b>	One SAS HDD	Up to two Ultra320 SCSI HDDs
<b>Maximum internal storage</b>	Up to 293.6GB with Storage and I/O Expansion blade installed	146.8GB
<b>Network</b>	Dual Gigabit Ethernet (TOE enabled)	2 integrated Gigabit Ethernet controllers
<b>I/O upgrade</b>	1 PCI-X expansion connector (traditional) and 1 PCI-Express expansion connector (high speed)	1 expansion card connection
<b>Systems management hardware</b>	Integrated systems management processor	



BladeCenter T provides a solid foundation for next-generation networks and rugged environments.



## IBM BladeCenter JS21 at a glance

<b>Processor</b>	PowerPC 970 up to 2.7 GHz (64-bit)
<b>Number of processors</b>	Up to 2 single- or dual-core
<b>Level 2 cache</b>	Up to 2x2MB
<b>Memory bus</b>	1.1 GHz
<b>Memory<sup>4</sup></b>	Up to 16GB DDR II SDRAM
<b>Internal hard disk drives</b>	Up to 2 73.4GB 2.5" SAS
<b>Maximum internal storage<sup>4,5</sup></b>	146.8GB
<b>Network</b>	2 integrated Gigabit Ethernet controllers
<b>I/O upgrade</b>	1 expansion card connection
<b>Systems management hardware</b>	Integrated system management processor

## AMD Opteron LS41<sup>6</sup> for IBM BladeCenter at a glance

<b>Processor</b>	AMD Opteron Model 8212, 8212HE, 8216, 8216HE and 8218
<b>Number of processors (std/max)</b>	1/4 (model dependent)
<b>Cache</b>	1MB L2 per processor core
<b>Memory<sup>4</sup></b>	Up to 64GB DDR II VLP memory
<b>Internal hard disk drives</b>	2 SAS HDDs
<b>Maximum internal storage<sup>4,5</sup></b>	146GB internally; up to 367GB with Storage and I/O blade installed
<b>Network</b>	4 integrated Gigabit Ethernet controllers (TOE enabled)
<b>I/O Upgrade</b>	2 PCI-X expansion connectors (traditional) and 1 PCI-Express expansion connector (high speed)
<b>Systems management hardware</b>	Integrated systems management processor

<sup>1</sup>Options support varies by server and chassis platform.

<sup>2</sup>KVM capability not available on JS20.

<sup>3</sup>IBM hardware products are made from new parts, or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12195, RTP, NC 27709, Attn: Dept. JDJA/B203. IBM makes no representation or warranty regarding third-party products or services including those designated as ServerProven® or ClusterProven®.

<sup>4</sup>Maximum internal hard disk and memory capacities may require the replacement of any standard hard drives and/or memory and the population of all hard disk bays and memory slots with the largest currently supported drives available.

<sup>5</sup>When referring to storage capacity, GB means 1,000,000,000 and TB means 1,000,000,000,000. Accessible capacity is less.

<sup>6</sup>Some machines are designed with a power management capability to provide customers with the maximum uptime possible for their systems. In extended thermal conditions, rather than shut down completely, or fail, these machines automatically reduce the frequency of the processor to maintain acceptable thermal levels.



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Somers, NY 10589

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August 2006  
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## BladeCenter H at a glance

<b>Form factor</b>	Rack/9U, high-availability midplane
<b>Blade bays</b>	Up to 14 2-processor, and up to 7 4-processor
<b>Standard media</b>	DVD-ROM and 2 external USB connections
<b>Switch modules</b>	Up to four traditional, up to four high-speed, and up to four bridge module bays
<b>Power supply modules</b>	Up to 4 hot-swap and redundant 2900W AC with load-balancing and failover capabilities. Operating at <u>200-240V AC</u>
<b>Cooling modules</b>	2 hot-swap and redundant blowers standard, additional fan packs on power supplies
<b>Systems management hardware</b>	Advanced Management Module standard, add an optional Advanced Module for redundancy
<b>I/O ports</b>	USB-based keyboard, video, mouse (KVM), Ethernet, USB
<b>Systems management software</b>	IBM Director with systems management and trial deployment tools, IBM Director Server Plus Pack optional
<b>Predictive Failure Analysis</b>	Hard disk drives, processors, blowers, memory
<b>Light path diagnostics</b>	Blade server, processor, memory, power supplies, blowers, switch module, management module, hard disk drives and expansion card
<b>Limited warranty<sup>1</sup></b>	3-year onsite limited warranty
<b>External storage</b>	Support for IBM System Storage™ solutions (including DS and NAS family of products) and many widely adopted non-IBM storage offerings