**acer**

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Product overview

For cluster environments, the Altos R380 F2 is a robust, two-socket system that is ideal for almost any application. With up to twelve 3.5" hard drives or up to twenty-four 2.5" hard drives of expansion, this dynamic system is at home as a head node or storage system for your HPC and technical computing environments. Add-on two Intel® Xeon® processors E5 family, up to twenty-four DDR3 DIMMs, and eighty PCIe 3.0 lanes, and this system becomes a powerful core for your most demanding data center needs.

Internal view
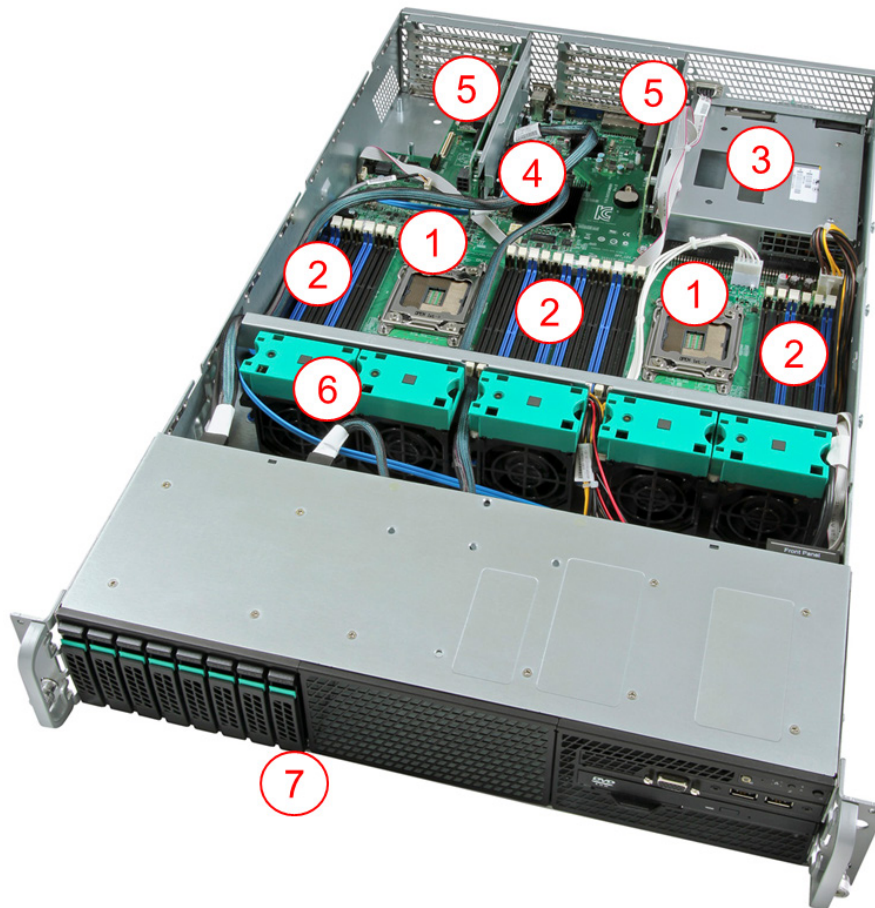
1	2 x Intel® Xeon® E5-2600 family processors
2	24 x DDR3 ECC registered / 16 x DDR3 ECC unbuffered DIMMs
3	2 x 750 W Platinum-level power supplies (1+1 redundant, hot-swappable)
4	Onboard SATA RAID connections (onboard SAS available via RAID key)
5	6 x PCIe 3.0 ×8 slots across two risers, 1 external I/O module, 1 internal SAS module. *Alternative risers provide 2 x PCIe® 3.0 ×16 slots and 2 PCIe® 3.0 ×8 slots.*
6	N+1 redundant system fans
7	Hot-swappable 3.5" or 2.5" SATA / SAS hard drives

Front Views
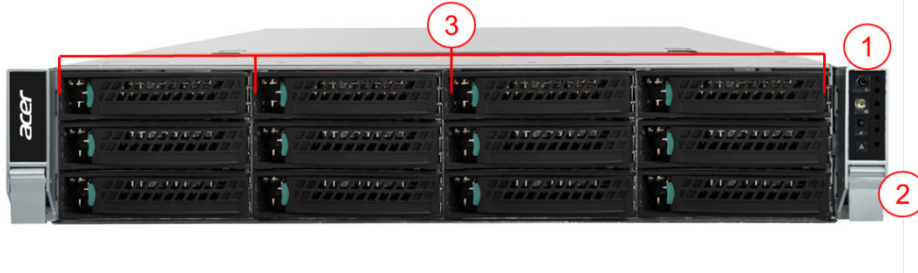
Front I/O
1   Power button, LED indicators: power, HDD activity, LAN, system ID
2   Hidden screw hole
3   Up to 12 x 3.5" or 2.5" SATA / SAS HDDs
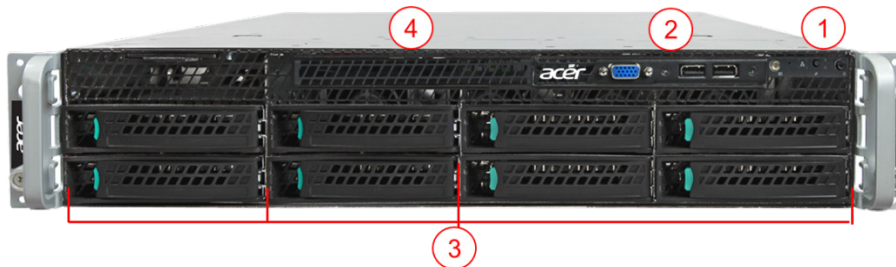
Front I/O
1   Power button, LED indicators: power, HDD activity, LAN, system ID
2   Front VGA and 2 x USB 2.0
3   Up to 8 x 3.5" or 2.5" SATA / SAS HDDs
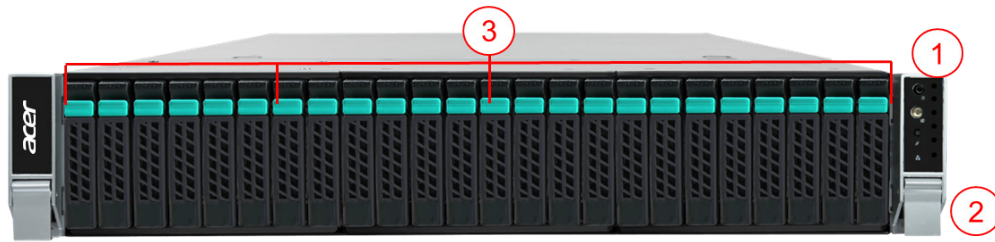4   Optional slimline optical drive

Front I/O
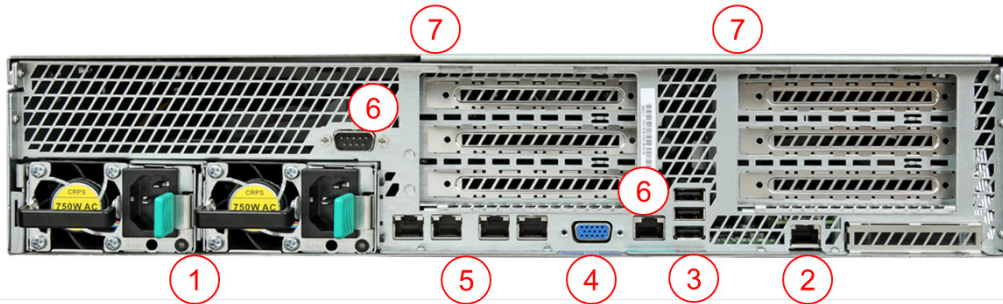1   Power button, LED indicators: power, HDD activity, LAN, system ID
2   Front VGA and 2 x USB 2.0
3   Up to 16 x 2.5" SATA / SAS HDDs (8 HDDs also available)
4   Optional slimline optical drive

Acer Altos R380 F2 Specifications

Front I/O

1	Power button, LED indicators: power, HDD activity, LAN, system ID
2	Hidden screw hole
3	Up to 24 x 2.5" SATA / SAS HDDs

Rear View

Rear I/O

1	2 x 750 W 80 PLUS Platinum-level (1+1 redundant, hot-swappable) or 2 x 460 W 80 PLUS Gold-level (1+1 redundant, hot-swappable)
2	Optional Management port (RJ-45)
3	3 x USB ports
4	Video port
5	4 x Gigabit LAN ports (RJ-45)
6	2 x Serial ports (1 x RJ-45 interface)
7	2 x PCIe 3.0 expansion riser cards

What's New

- New Intel® Xeon® E5-2600 family processors
- Hot-pluggable/redundant power supply with 80 PLUS® Platinum-level efficiency
- Smart Server Manager v1.2 with improved management functionality

Product Specifications (per node)

Processors and Chipset

- Up to two Intel® Xeon® E5-2600 family processors
- Chipset: Intel® C602

Memory

- 24 x DDR3 or DDR3L registered / unbuffered DIMMs

Network Controllers
- Quad-port Intel® I350 Ethernet Controllers

Storage
- Hard disk form factor: 3.5" or 2.5"
- Type: SAS / SATA / SSD with hot-plug capability
- Up to 12 x 3.5" or 24 x 2.5" hard drives, plus internal space for 2 x 2.5" SSD drives

Storage Controllers
- Intel® 602 chipset with SCU (8 x 3 Gb/s SATA ports) with RAID 0, 1, 5, 10 support
- Optional SAS RAID upgrade with RAID 0, 1, 10 or RAID 0, 1, 5, 10 support
- Optional Hardware SAS RAID with RAID 0, 1, 5, 6, 10, 50, 60 support

Expansion slots
- Two risers provide:
    - 4 x PCIe® 3.0 ×8 (×16 connector)
    - 2 x PCIe® 3.0 ×8 (×8 connector)
- 1 x I/O module expansion slot or dedicated management port

Note: Optional riser with full PCIe® 3.0 ×16 is available for coprocessor or GPGPU support.

Management
- Acer Smart Server Manager
- Embedded BMC controller with IMPI 2.0 compatibility
- System ID LED buttons, System Health LED
- Optional server management and KVM over IP remote management to OS level

BIOS
- UEFI BIOS
- SMBIOS 2.7

Deployment/Serviceability
- Acer Smart Setup
- BIOS Update Tool
- IPMI Firmware Update Tool

Operating Systems
- Windows Server® 2008 (includes Hyper-V™)
- Windows Server 2008 R2 (includes Hyper-V™)
- Windows Server 2012
- Red Hat Enterprise Linux 6
- SUSE Linux Enterprise Server 11
- VMware ESXi™ 5.0

Graphics
- BMC embedded controller
- 128 MB shared video memory
- 16 MB dedicated

Chassis/Form Factor
- 2U rack-optimized

Power Supply

- 2 x 750 W 80 PLUS® Platinum-level or 460 W 80 PLUS® Gold-level efficient easy-swap power supply units (1+1 redundant, hot-swappable)

Security

- Administrator/user password
- Power-on password
- Setup password
- Device boot control
- Secure command line interface (SSH)
- Secure browser interface (Secure socket layer - SSL support)
- Secure IPMI LAN interface (Authentication, Integrity, and Confidentiality algorithm)

Regulatory Compliant Standards

EMC
- FCC (Class A)
- CE (Class A)
- BSMI (Class A)

Safety
- MET
- CB
- Nemko/GS
- CCC
- CEL

Environmental Specifications

Dimensions	438 (W) x 707.8 (D) x 87.6 (H) mm (17.24 x 27.9 x 3.45 inches)	
Weight	Maximum	38 kg (83.78 lbs.)
	Minimum (includes a HDD, CPU and RAM, and 2 x PSU)	26 kg (57.20 lbs.)
System inlet temperature	Operating	10° - 35° C (50° - 95° F)
	Non-operating	-40° - 70° C (-40° - 158° F)
Relative humidity	Non-operating	50 - 90 %
Acoustics	Idle	
	LWAd	5.7 BA
	Operating	
	LWAd	6.3 BA
Power	Rated Steady –state power	750 W
	BTU rating	2560 BTU/hr at 100 - 240 VAC

Technical specifications

PCIe® specifications

The primary I/O bus for the main board is PCIe Gen3. The following table lists the characteristics of the PCI-E bus segments. Details about each bus segment follow the table.
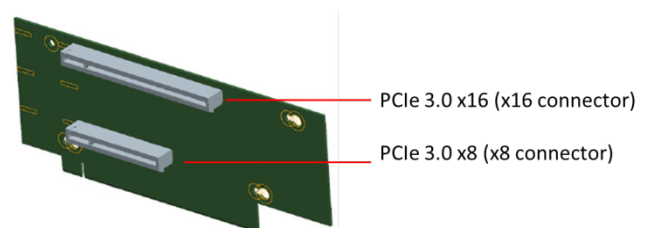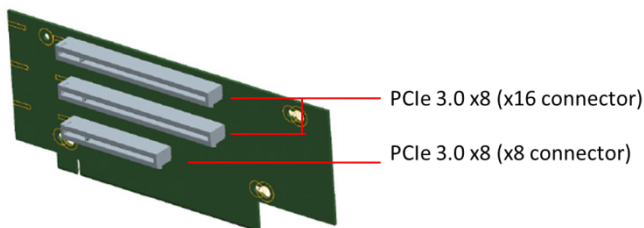
NOTE: The signaling bit rate of PCI Express is 8.0 Gbit/s one direction per lane for Gen 3.

Expansion slot	Number	CPU[1]	Type	Bus width[2]	Voltage	Connector	Location[3]	Length
PCIe ×8	2	1	PCIe Gen3	×8	3.3 V	×16	Riser 1	Full width, full length
PCIe ×8	2	2	PCIe Gen3	×8	3.3 V	×16	Riser 2	Full width, full length
PCIe ×8	1	2	PCIe Gen3	×8	3.3 V	×8	Riser 1	Low-profile, half length
PCIe ×8	1	2	PCIe Gen3	×8	3.3 V	×8	Riser 2	Full width, half length
I/O module[4]	1	1	PCIe Gen3	×8	3.3 V	Proprietary	Onboard	Proprietary module compatible

NOTE:

1. CPU 2 indicates that a second CPU is required to access that specific PCIe® slot.

2. Indicates the number of physical electrical lanes running to a PCIe® connector.

3. If only one CPU is used:
   It is not possible to use more than the top two slots on 2U riser cards (in riser slot 1).
   Riser slot 2 cannot be used.

4. The I/O module can be only populated if the dedicated management port is removed.

Riser card options below, up to two can be installed

PCIe 3.0 x8 (x16 connector)
PCIe 3.0 x8 (x8 connector)

PCIe 3.0 x16 (x16 connector)
PCIe 3.0 x8 (x8 connector)

Onboard storage specifications

Item	Description
Controller	Intel® 602 Platform Controller Hub
Simultaneous drive transfer channels	8 onboard SATA / SAS ports
Max throughput per channel	3 Gb/s native
	6 Gb/s via RAID module
Data transfer method	• Non-RAID mode
	• RAID mode
Drive type supported	Serial ATA; Serial Attached SCSI (SAS)
RAID levels support	• Default SATA RAID 0, 1, 10 (Intel and LSI software RAID)
	• Optional SAS RAID 0, 1, 10 (Intel and LSI software RAID)
	• Optional SATA RAID 0, 1, 5, 10 (LSI software RAID)
	• Optional SAS RAID 0, 1, 5, 10 (Intel and LSI software RAID)
	NOTE: Intel software RAID only supports Windows OS
RAID function support	• Supports multiple logical volumes
	• Setup through ROM based Array Configuration Utility Installation scripting support
RAID OS support	• Windows Server 2008
	• Windows Server 2008 R2
	• Windows Server 2012
	• Red Hat Enterprise Linux 6
	• SuSE Linux Enterprise Server 11
Additional features	• NCQ (Native Command Queuing)
	• AHCI (Advanced Host Controller Interface)

Onboard LAN specifications

Item	Description
Controller	Quad-port Intel® I350 Ethernet Controllers
Network interface	10Base-T / 100Base-TX / 1000Base-T
Compatibility standards	• IEEE 802.3 Ethernet interface for 10BASE-T
	• IEEE 802.3ab Ethernet interface for 1000BASE-T
	• IEEE 802.3u Ethernet interface for 100BASE-TX
Manageability	• NC-SI, SMBus

Virtualization acceleration	• PXE, iSCSI boot
	• Virtual Machine Device Queues (VMDq)
	• PCI-SIG SR-IOV implementation

| Connector | RJ-45 |
| Supported cable type | CAT 5e / 6e wire |

Memory specifications and population

Item	Description
Supported memory types	• Registered DDR3 800 / 1066 / 1333 / 1600 MHz
	• Unbuffered DDR3 800 / 1066 / 1333 / 1600 MHz
	• Registered DDR3L 1333 / 1600 MHz
	• Unbuffered DDR3L 1333 / 1600 MHz
	NOTE: Acer does not qualify mixed memory configurations of memory type, capacity or make.
Population	Population per CPU by DIMM type listed below.
	NOTE: Support for 16 / 32 GB DIMMs may vary by regional availability.
	A CPU must be populated for memory to be read.

Memory support and population

RDIMM support

Ranks Per DIMM & Data Width	Memory Capacity Per DIMM[1]			Speed (MT/s) and Voltage Validated by Slot per Channel (SPC) and DIMM Per Channel (DPC)[2]											
				1 Slot per Channel		2 Slots per Channel				3 Slots per Channel					
				1DPC		1DPC		2DPC		1DPC		2DPC		3DPC	
				1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5
SRx8	1GB	2GB	4GB	1066 1333	1066 1333 1600	1066 1333	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	n/a	800
DRx8	2GB	4GB	8GB	1066 1333	1066 1333 1600	1066 1333	1066 1333 1600	1066 1333	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	n/a	800
SRx4	2GB	4GB	8GB	1066 1333	1066 1333 1600	1066 1333	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	n/a	800
DRx4	4GB	8GB	16GB	1066 1333	1066 1333 1600	1066 1333	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	1066	1066 1333 1600	n/a	800
QRx4	8GB	16GB	32GB	800	1066	800	1066	800	800	800	1066	800	800	n/a	n/a
QRx8	4GB	8GB	16GB	800	1066	800	1066	800	800	800	1066	800	800	n/a	n/a

UDIMM support

Ranks Per DIMM & Data Width	Memory Capacity Per DIMM[1]			Speed (MT/s) and Voltage Validated by Slot per Channel (SPC) and DIMM Per Channel (DPC)[2,3]									
				1 Slot per Channel		2 Slots per Channel				3 Slots per Channel			
				1DPC		1DPC		2DPC		1DPC		2DPC	
				1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5
SRx8 Non-ECC	1GB	2GB	4GB	n/a	1066, 1333, 1600	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333
DRx8 Non-ECC	2GB	4GB	8GB	n/a	1066, 1333, 1600	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333
SRx16 Non-ECC	512MB	1GB	2GB	n/a	1066, 1333, 1600	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333	n/a	1066, 1333
SRx8 ECC	1GB	2GB	4GB	1066, 1333	1066, 1333, 1600	1066	1066, 1333	1066	1066, 1333	1066	1066, 1333	1066	1066, 1333
DRx8 ECC	2GB	4GB	8GB	1066, 1333	1066, 1333, 1600	1066	1066, 1333	1066	1066, 1333	1066	1066, 1333	1066, 1600	1066, 1333, 1600

LRDIMM support

Ranks Per DIMM & Data Width[1]	Memory Capacity Per DIMM[2]		Speed (MT/s) and Voltage Validated by Slot per Channel (SPC) and DIMM Per Channel (DPC)[3,4,5]							
			1 Slot per Channel		2 Slots per Channel		3 Slots per Channel			
			1DPC		1DPC and 2DPC		1DPC and 2DPC		3DPC	
			1.35V	1.5V	1.35V	1.5V	1.35V	1.5V	1.35V	1.5V
QRx4 (DDP)[6]	16GB	32GB	1066, 1333	1066, 1333	1066	1066, 1333	1066, 1333	1066	n/a	800
QRx8 (P)[6]	8GB	16GB	1066, 1333	1066, 1333	1066	1066, 1333	1066, 1333	1066	n/a	800

* 3 DIMM per channel is only supported by single rank and dual rank RDIMM. For UDIMM and quad rank RDIMM, maximum two DIMMs per channel are supported.

NOTE: Populate the memory of CPU2 to same as CPU1.

NOTE: support depends on 16 GB DIMM availability

Mirroring mode:

- For mirroring mode, the memory image in channel A is maintained the same as channel C and channel B is maintained the same as channel D. Therefore, the effective size of memory is reduced by at least one-half.

- The DIMM configuration in mirrored channels must be identical. Channel A & channel C with identical DIMMs and also channel B & channel D with identical DIMMs. The DIMM type, size, manufacturer should be the same.

- Same rule is applied to the CPU2

- 3 DIMM per channel is only supported by single rank and dual rank RDIMM.

- For UDIMM and quad rank RDIMM, maximum two DIMMs per channel.

Lockstep mode:

- Channel A and channel B are paired and channel C and channel D are paired in lockstep mode.

- Lockstep mode is the only mode to support ×8 SDDC.

- Lockstep channels must be populated identically. Channel A & channel B with identical DIMMs and also channel C & channel D with identical DIMMs. The DIMM type, size, manufacturer should be the same.

- Same rule is applied to the CPU2.

- 3 DIMM per channel is only supported by single rank and dual rank RDIMM.

- For UDIMM and quad rank RDIMM, maximum two DIMMs per channel.

Rank Sparing mode:

- An unused spare rank is reserved on each channel. The spare rank is used to copy the contents of a failing rank on the channel to keep a system working when a rank starts to fail. The reserved rank is

not able to be used before the other rank fail.

- 3 DIMM per channel is only supported by single rank and dual rank RDIMM.

- For UDIMM and quad rank RDIMM, maximum two DIMMs per channel.

- For 1 DIMM per channel configuration, only quad rank RDIMM is supported for rank sparing.

Memory Identification

Generally, there are some memory information printed on the label of DIMM, but different vendor may have different format. For example:

4 GB 2R×4 PC3-10600R xx xx xxx

1. Density

- 1 GB, 2 GB, 4 GB, 8 GB, 16 GB, 32 GB

2. Rank

- 1R = Single Rank

- 2R = Dual Rank

- 4R = Quad Rank

- Note: if any quad rank DIMM is used, maximum only 2 DIMM per channel can be supported

3. Bit Organization

- This platform supports ×4 and ×8

- Note: It's not recommend to mix DIMM with different bit organization in one system

4. Speed

- PC3 – 6400 => DDR3-800

- PC3 – 8500 => DDR3-1066

- PC3 – 10600 => DDR3-1333

- PC3 – 12800 => DDR3-1600

Graphics Specifications

ServerEngines Pilot-III Server Management Controller

Memory: 16 MB dedicated, 128 MB shared

Main Features
- Integrated Graphics Core with 2D Hardware accelerator
- DDR-2/3 memory interface supports up to 256 MB of memory
- Supports all display resolutions up to 1600 x 1200 16bpp @ 60 Hz
- High speed Integrated 24-bit RAMDAC

Supported video modes

2D Mode	Refresh Rate (Hz)	2D Video Mode Support		
		8 bpp	16 bpp	32 bpp
640x480	60, 72, 75, 85, 90, 100, 120, 160, 200	Supported	Supported	Supported
800x600	60, 70, 72, 75, 85, 90, 100, 120,160	Supported	Supported	Supported
1024x768	60, 70, 72, 75,85,90,100	Supported	Supported	Supported
1152x864	43,47,60,70,75,80,85	Supported	Supported	Supported
1280x1024	60,70,74,75	Supported	Supported	Supported
1600x1200**	60	Supported	Supported	Supported

Power specifications

750 W Platinum-certified power supply

Parameter	Min	rated	Max	Start up Vac	Power off Vac
110 Vac	90 Vrms	100-127 Vrms	140 Vrms	85 Vac ± 4 Vac	70 Vac ± 5 Vac
220 Vac	180 Vrms	200-240 Vrms	264 Vrms		
Frequency	47 Hz	50/60 Hz	63 Hz		

AC input power factor

Output power	10% load	20% load	50% load	100% load
Power factor	>0.65	>0.80	>0.90	>0.95

Tested at 230 Vac, 50 Hz and 60Hz and 115VAC, 60 Hz

Efficiency

Loading	100%	50%	20%	10%
Minimum efficiency	91%	94%	90%	82%

AC Line Inrush   Shall not exceed 55 A peak

AC Line Dropout/ Holdup

Loading	Holdup time
70%	12 msec

460 W Gold-certified power supply

Parameter	Min	rated	Max	Start up Vac	Power off Vac
110 Vac	90 Vrms	100-127 Vrms	140 Vrms	85 Vac ± 4 Vac	70 Vac ± 5 Vac
220 Vac	180 Vrms	200-240 Vrms	264 Vrms		
Frequency	47 Hz	50/60 Hz	63 Hz		

AC input power factor

Output power	10% load	20% load	50% load	100% load
Power factor	>0.65	>0.80	>0.90	>0.95

Tested at 230 Vac, 50 Hz and 60Hz and 115VAC, 60 Hz

Efficiency

Loading	100%	50%	20%	10%

Minimum efficiency	88%	92%	88%	80%

AC Line Inrush   Shall not exceed 55 A peak

AC Line Dropout/ Holdup

Loading	Holdup time
70%	12 msec

Acer server software utilities

Smart Setup	Easy deployment via the latest version of Acer's Smart Setup. Smart Setup is available both in box as a driver packed installation DVD or a downloadable file to be put into a USB 2.0 device, and eases the deployment of Acer servers for any certified OS. Through its unique interface, users may select to have all the correct drivers be pre-deployed for the OS of their choosing, as well as setup hardware RAID devices, BMC settings (where available), and even clone the pre-settings to a bootable USB device to ease mass server deployments.
Optional iKVM management web console	Web-based management utility to simplify system management with embedded BMC, system monitoring and alerting, event handling, remote power control and KVM-over-IP. Smart Console is OS independent and offers virtual media through floppy, ODD, and removable disk. **Note:** Function is available with an add-on RMM module via NIC1 or through the RMM and dedicated management port module.
Smart Server Manager v1.2	Offering 24-7 monitoring for system health and performance ● Delivers proactive event management features including system event logging, event handling from e-mail and SNMP Trap (PET) alerting ● Monitors onboard hardware, operating systems and virtual machines ● Allows remote control from KVM and Power control ● Satisfies management in web-based UI, role-based administration, and automated management scripts ● Remote firmware deployment and scheduled updates ● Customizable BIOS settings and deployment to networked nodes ● Optional power-capping functionality for Acer servers with Intel® Xeon processors E3 or E5 families

Available options

Processors (up to 2)

Intel® Xeon® processor (Eight Core)

E5-2690 (20 MB L3 cache, 2.9 GHz, DDR3 1600/1333/1066 MHz, 135 W)
E5-2680 (20 MB L3 cache, 2.7 GHz, DDR3 1600/1333/1066 MHz, 130 W)
E5-2670 (20 MB L3 cache, 2.6 GHz, DDR3 1600/1333/1066 MHz, 115 W)
E5-2665 (20 MB L3 cache, 2.4 GHz, DDR3 1600/1333/1066 MHz, 115 W)
E5-2660 (20 MB L3 cache, 2.2 GHz, DDR3 1600/1333/1066 MHz, 95 W)
E5-2650 (20 MB L3 cache, 2.0 GHz, DDR3 1600/1333/1066 MHz, 95 W)
E5-2650L (20 MB L3 cache, 1.8 GHz, DDR3 1600/1333/1066 MHz, 70 W)

Intel® Xeon® processor (Six Core)

E5-2667 (15 MB L3 cache, 2.9 GHz, DDR3 1600/1333/1066 MHz, 130 W)
E5-2640 (15 MB L3 cache, 2.5 GHz, DDR3 1600/1333/1066 MHz, 95 W)
E5-2630 (15 MB L3 cache, 2.3 GHz, DDR3 1600/1333/1066 MHz, 95 W)
E5-2620 (15 MB L3 cache, 2.0 GHz, DDR3 1600/1333/1066 MHz, 95 W)
E5-2630L (15 MB L3 cache, 2.0 GHz, DDR3 1600/1333/1066 MHz, 60 W)

Intel® Xeon® processor (Quad Core)

E5-2643 (10 MB L3 cache, 3.3 GHz, DDR3 1600/1333/1066 MHz, 130 W)
E5-2609 (10 MB L3 cache, 2.4 GHz, DDR3 1600/1333/1066 MHz, 80 W)
E5-2603 (10 MB L3 cache, 1.8 GHz, DDR3 1600/1333/1066 MHz, 80 W)

Intel® Xeon® processor (Dual Core)

E5-2637 (5 MB L3 cache, 3.0 GHz, DDR3 1600/1333/1066 MHz, 80 W)

Memory

Memory type	Registered / Unbuffered DDR3 or DDR3L ECC memory
Capacities	2 / 4 / 8 / 16 / 32 GB DIMMs Registered
	2 / 4 / 8 GB DIMMs Unbuffered
DIMM number	24
Max memory	768 GB

Note: 16 and 32 GB DIMM availability may vary by region.

Note: 3 DIMM per channel is only supported by single rank and dual rank RDIMM. For UDIMM and quad rank RDIMM, maximum two DIMMs per channel.

Hard drives

Type	Interface, bandwidth	Capacities (RPM)
Enterprise Nearline SATA 3.5"	6 Gb/s	500 GB (7.2K)
		1 TB (7.2K)
		2 TB (7.2K)
		3 TB (7.2K)
		4 TB (7.2K)
Enterprise Nearline SAS 3.5"	6 Gb/s	1 TB (7.2K)
		2 TB (7.2K)
		3 TB (7.2K)
		4 TB (7.2K)
Enterprise SAS, 3.5"	6 Gb/s	300 GB (15K)
		450 GB (15K)
		600 GB (15K)
		1 TB (7.2K)
		2 TB (7.2K)
		3 TB (7.2K)
		4 TB (7.2K)
Enterprise Nearline SATA 2.5"	6 Gb/s	500 GB (7.2K)
		1 TB (7.2K)
Enterprise SAS, 2.5"	6 Gb/s	146 GB (15K)
		300 GB (15K)
		300 GB (10K)
		450 GB (10K)
		600 GB (10K)
		900 GB (10K)
SSD	6 Gb/s	120 GB
		180 GB
		240 GB
		300 GB

RAID support upgrades

Model	Port number	RAID support
Intel® RAID C600 Upgrade Key RKSATA4R5 enables LSI SATA SW RAID 5	4 internal ports	0, 1, 5, 10

Intel® RAID C600 Upgrade Key RKSATA8R5 enables LSI SATA SW RAID 5	8 internal ports	0, 1, 5, 10
Intel® RAID C600 Upgrade Key RKSAS4 activates 4 SAS ports and includes RSTe SW RAID and LSI SW RAID	4 internal ports	0, 1, 10
Intel® RAID C600 Upgrade Key RKSAS8 activates 8 SAS ports and includes RSTe SW RAID and LSI RAID	8 internal ports	0, 1, 10
SAS Module: 4/8 Port SAS-2.1 version, full HW RAID/straight SAS (1 GB cache)	4 or 8 internal ports	0, 1, 5, 6, 10, 50, 60
I/O module		
Integrated 24 port 6G SAS expander, based on LSI* LSISAS2x36 chip.	24	Varies with RAID card
Includes 3 screws and bumpers, power cable, 4 Mini-SAS cables		
Integrated 36 port 6G SAS expander, based on LSI* LSISAS2x36 chip.	36	Varies with RAID card
Includes 3 screws and bumpers, power cable, 6 Mini-SAS cables		
LSI® MegaRAID SAS 9260-16i* (512 MB DDR2 cache)	16 internal ports	0, 1, 5, 6, 10, 50, 60
LSI® MegaRAID SAS 9280-16i4e	16 internal ports	0, 1, 5, 6, 10, 50, 60
(512 MB DDR3 cache)		

* Battery Backup Unit BBU08 available

Note: 16 port RAID cards require an additional BBU bracket for BBU installation.

Ethernet network cards and I/O modules

Model	Port number	Bandwidth
Intel® I350-T2	2	1 Gb/s
Intel® I350-T4	4	1 Gb/s
Intel® 82599 10 Gigabit Ethernet Controller Dual SFP+ port 10GbE (I/O module)	2	10 Gb/s
Intel® X540-T1 single RJ-45 port 10GBASE-T (I/O module)	1	10 Gb/s
Intel® X540-T2 Dual RJ-45 port	2	10 Gb/s

10GBASE-T (I/O module)

Intel® X540-T1 single RJ-45 port 10GBASE-T PCIe 2.1	1	10 Gb/s
Intel® X540-T2 dual RJ-45 port 10GBASE-T PCIe 2.1	2	10 Gb/s
Intel® X520-DA2 server adapter*	2	10 Gb/s
Intel® X520-SR1 server adapter*	1	10 Gb/s
Intel® X520-SR2 server adapter*	2	10 Gb/s
Intel® X520-LR1 server adapter*	1	10 Gb/s

*Note: Intel's 10GbE cards vary in terms or their connecter type. The X520-DA2 is a copper connector for lengths up to 7 M, while the X520-SR1/2 is an optical connection for cables up to 550 M. The X520-LR1 is for even longer cable lengths up to 10 kM.

Note: All cards marked (I/O module) indicate the card is inserted in the I/O module on the right-hand side of the node. It does no use the standard, low-profile PCIe ×16.

Fibre Channel HBAs

Model	Port number	Bandwidth
Qlogic® QLE2560	1	8 Gb/s
Qlogic® QLE2562	2	8 Gb/s

InfiniBand

Model	Port number	Bandwidth
Intel QLE7340	1	40 Gb/s
Mellanox Connect-X 3 FDR	1	56 Gb/s
Mellanox Connect-X 3 FDR	2	56 Gb/s
Mellanox Connect-X 3 QDR onboard option	1	40 Gb/s
Mellanox Connect-X 3 FDR onboard option	1	56 Gb/s

Management module

Model	Function	Management port
Remote Management Module lite	Enables remote iKVM	NIC1
Remote Management Module and dedicated management port	Enables remote iKVM and provides additional dedicated management port	Dedicated management port

Note: All cards marked (I/O module) indicate the card is inserted in the I/O module on the right-hand side of the node. It does not use the standard, low-profile PCIe ×16.

Service and support

Acer Servers offer a comprehensive service suite to take care of daily IT needs. Users can select the 3-year standard warranty or choose extended warranties and services.

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