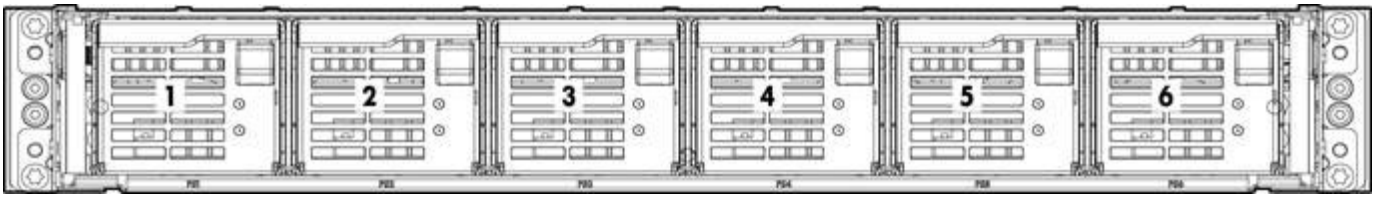
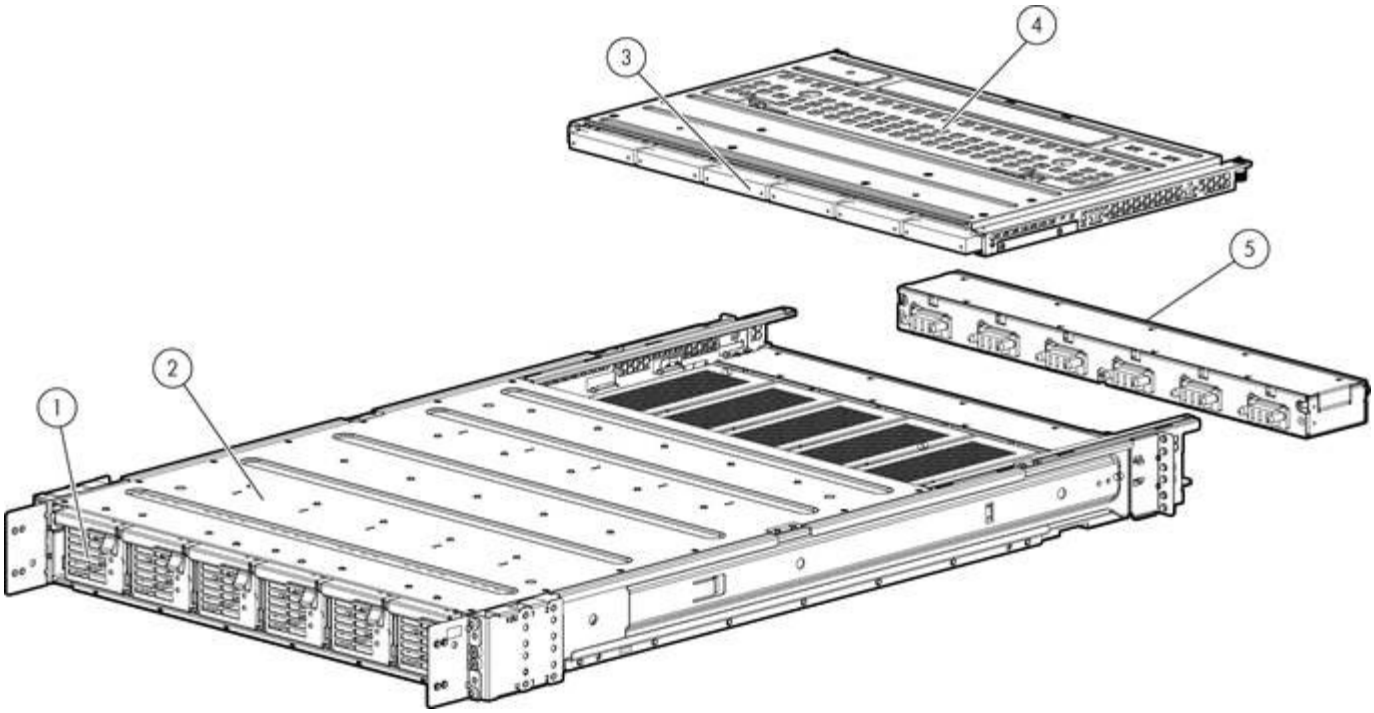
Overview

HPE Apollo 6000 Power Shelf

The HPE Apollo 6000 Power Shelf offers pooled power for rack level efficiency as well as provide N+N redundancy to support your datacenter needs. Depending on the power configurations of the trays within a chassis, the power shelf can support 2 to 3 fully populated HPE Apollo a6000 Chassis with max DC power up to 15.9 kW. The HPE Apollo 6000 Power Shelf with its redundant hot-plug power supplies can also be configured for single- or three-phase input.



Front View with Power Supply Slots 1-6



Side View:

1. Power supply
2. HPE Apollo 6000 Power Shelf
3. Power management tray
4. Air baffle
5. AC input modules

Overview

Key features

- Each power shelf can support up to 15.9 kW of DC power.
- The power shelf has six power supply slots for maximum configurability.
- Can be configured for single-phase or three-phase AC input.

Supports N, N+1 and N+N power redundancy with hot-plug power supplies.

Standard Features

NOTE: For the Standard Features shipped in the Factory Integrated Models, please see the "Configuration Information - Factory Integrated Models" section.

Power Shelf Rails	**NOTE:** Hewlett Packard Enterprise recommends a minimum of two people required for all rack installations. Please refer to your installation instructions for proper tools and number of people to use for any installation.	
	HPE Apollo 6000 Pwr Shelf Rail Kit	765439-B21
	NOTE: This kit only supports HPE racks.	
	HPE Apollo 6000 3PO Power Shelf Rail Kit	775167-B21
	NOTE: This kit supports some HPE Pods and some 3rd Party racks.	
HPE Power Supplies	**NOTE:** Mixing of 2 different power supply types is not supported. **NOTE:** If Three-Phase AC input is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required. **NOTE:** The HPE power supplies meet multiple Energy Efficiency Initiatives: 94% Climate Savers Computing, PLATINUM and ECOS Consulting 80 Plus Platinum.	
	HPE 2650W Performance Platinum Hot Plug Power Supply Kit	733459-B21
	HPE 2400W Performance Platinum Hot Plug Power Supply Kit	588603-B21
	HPE 2650W Performance Universal Hot Plug Power Supply Kit	753618-B21
AC Power Input Modules	**NOTE:** If Three Phase Power Module is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.	
	HP BLc7000 1 PH FIO Power Module Option	413379-B21
	HP BLc7000 3 PH Intl FIO Power Modue Option	413381-B21
	HP BLc7000 3 PH NA/JP FIO Power Module Option	413380-B21
	HP HVDC 1PH AC Power Module BLc FIO Option	753623-B21
12V DC Power Cables	HP Apollo 6000 Power Shelf 863.3mm 12V DC Power Cable	757398-B21
	HP Apollo 6000 Power Shelf 984mm 12V DC Power Cable	757399-B21
	HP Apollo 6000 Power Shelf 1168mm 12V DC Power Cable	757397-B21
	NOTE: For additional power cable information, please visit: **http://h18000.www1.hpe.com/products/servers/proliantstorage/power-protection/options/power-cable.html**	
Services	Refer to the Hewlett Packard Enterprise website at: **http://www.hpe.com/go/services** for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local Hewlett Packard Enterprise sales office.	
Warranty	This product is covered by a global limited warranty and supported by Hewlett Packard Enterprise Services and a worldwide network of Hewlett Packard Enterprise Authorized Channel Partners. Hardware diagnostic support and repair is available for one year from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HPE Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty.	

Standard Features

NOTE: Server Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have Hewlett Packard Enterprise replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hpe.com/products/servers/platforms/warranty/index.html
NOTE: In Asia Pacific, Japan and China, Server Warranty includes 3 year Parts, 3 year Labor, 3-year On-site support with next business day response.

Service and Support

Recommended HPE Care Pack Services for your HPE product

Service and Support

The HPE Apollo 6000 power shelf is a part of the HPE Apollo a6000 chassis. Support for this tray can be purchased at a chassis level. Please refer to HPE Apollo a6000 chassis quick spec documentation for details.

HPE Technology Services for Industry Standard Servers

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Connect to Hewlett Packard Enterprise to help prevent problems and solve issues faster. Our support technology lets you to tap into the knowledge of millions of devices and thousands of experts to stay informed and in control, anywhere, any time.

Protect your business beyond warranty with HPE Care Pack Services
HPE Care Pack Services enable you to order the right service level, length of coverage and response time as you purchase your new server, giving you full entitlement for the term you select.

Get connected to Hewlett Packard Enterprise to improve your support experience

Prevent problems with innovative, automated monitoring tools and proactive services. Combining Proactive Care Services with our remote support technology such as Insight Online provides you with expert advice and personalized, cloud-based automated IT support, helping to prevent unplanned down time and solve problems quickly. For more information, visit:
http://www.hpe.com/go/proactiveinsightexperience

Parts and Materials

Hewlett Packard Enterprise will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product QuickSpecs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by Hewlett Packard Enterprise due to malfunction

Base Configuration

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, Hewlett Packard Enterprise recommends the use of an Hewlett Packard Enterprise approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.

Step 1: Choose a Power Shelf Configuration

HPE Power Shelf

NOTE: A Power Shelf is required for all HPE Apollo 6000 configurations. Depending on which trays are populated in the HPE Apollo a6000 chassis, the ratio of power shelf to chassis varies.
NOTE: A power shelf can be ordered without a rack. However both the power shelf and chassis are required if ordered as factory integrated into a rack.

HP Apollo 6000 Standard Power Shelf	735131-B21

NOTE: To determine how many power shelves are needed at a rack level (based on server and chassis configuration, please use the HPE Power Advisor as a guidance (power values may vary up to 15%).

Step 2: Choose an AC Input Power Module

AC Input Power Module

NOTE: If Three Phase Power Module is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy 6 Power Supply Option Kits are required.

HP BLc7000 1 PH FIO Power Module Option	413379-B21
HP BLc7000 3 PH Intl FIO Power Modue Option	413381-B21
HP BLc7000 3 PH NA/JP FIO Power Module Option	413380-B21
HP HVDC 1PH AC Power Module BLc FIO Option	753623-B21

Step 3: Choose Power Supplies

HPE Power Supplies

NOTE: Mixing of Power Supplies is not supported on HPE Apollo 6000 Power Shelf.
NOTE: If Three-Phase Power is selected, a minimum of 3 Power Supply Option Kits are needed. For full redundancy, 6 Power Supply Option Kits are required

HPE 2650W Performance Platinum Hot Plug Power Supply Kit	733459-B21
HPE 2400W Performance Platinum Hot Plug Power Supply Kit	588603-B21
HPE 2650W Performance Universal Hot Plug Power Supply Kit	753618-B21

Step 4: Choose Output Power Cables

HPE 12V DC Power Cables

NOTE: Each power shelf can support up to twelve 12V DC cables
NOTE: Depending on the number of chassis to be supported, the cable length varies.

HP Apollo 6000 Power Shelf 863.3mm 12V DC Power Cable	757398-B21

NOTE: Recommended for chassis closest /next to power shelf

HP Apollo 6000 Power Shelf 984mm 12V DC Power Cable	757399-B21
HP Apollo 6000 Power Shelf 1168mm 12V DC Power Cable	757397-B21

Step 5: Choose Rail Kit

Power Shelf Rails

HP Apollo 6000 Power Shelf Rail Kit	765439-B21
HPE Apollo 6000 3PO Power Shelf Rail Kit	

Base Configuration

Step 6: Choose HPE Power Cords

HPE Power Cords	HP 2.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK738A
	HP 2.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK739A
	HP 2.5m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK740A
	HP 2.5m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK741A
	HP 3.0m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK742A
	HP 3.0m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK743A
	HP 1.37m 250V 16A C19-C20 WW Single IPD Enabled Jumper Cord	TK744A
	HP 1.37m 250V 16A C19-C20 WW 3PC Kit IPD Enabled Jumper Cord	TK745A
	HP SAFDGRID-SAFDGRID 277V 15Amp DC 0.76m Jumper Cord	J6W98A
	HP SAFDGRID-SAFDGRID 277V 15Amp DC 1.37m Jumper Cord	J6W99A
	HP SAFDGRID-SAFDGRID 277V 15Amp DC 2.0m Jumper Cord	J6X00A
	HP SAFDGRID-LS-25 277V 15Amp AC 0.76m Jumper Cord	J6X01A
	HP SAFDGRID-LS-25 277V 15Amp AC 1.37m Jumper Cord	J6X02A
	HP SAFDGRID-LS-25 277V 15Amp AC 2.0m Jumper Cord	J6X03A
	HP C19 - C20 WW 250V 16Amp Flint Gray 2.0m Jumper Cord	AF574A
	HP C19 - C20 WW 250V 16Amp Flint Gray 1.20m Jumper Cord	AF575A
	HP C19 - CEE-VII EU 250V 16Amp 3.6m Power Cord	AF576A
	HP C19 - AS3112-3 AU/NZ 250V 15Amp 3.6m Power Cord	AF577A
	HP C19 - SABS-164 ZA 250V 16Amp 3.6m Power Cord	AF579A
	HP C19 - CEI-23-50 IT/CL 250V 16Amp 3.6m Power Cord	AF580A
	HP C19 - IEC-309 DK/SE/AR 250V 16Amp 3.6m Power Cord	AF581A
	HP C19 - IS-1293 IN/PK/BD 250V 16Amp 2.5m Power Cord	AF582A
	HP C19 - ISI-32 IL 250V 16Amp 2.5m Power Cord	AF583A
	HP C19 - GB-1002 CN 250V 16Amp 2.5m Power Cord	AF584A
	HP C19 - CNS-690 TW 250V 16Amp 2.5m Power Cord	AF585A
	HP C19 - Nema 5-15P TH-PH 125V 15Amp 3.6m Power Cord	AF586A
	HP C19 - NBR-14136 BR 250V 16Amp 2.5m Power Cord	AF592A
	HP C19 - Nema L6-20P NA/JP 250V 20Amp High Voltage 3.6m Power Cord	AF593A

NOTE: For additional power cable information, please visit:
http://h18000.www1.hpe.com/products/servers/proliantstorage/power-protection/options/power-cable.html

Power Specifications

HPE 2650 Watts Platinum Hot Plug Power Supply					
Part Number	733459-B21				
Input Voltage Range (V rms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	200	208	220	230	240
Maximum Rated Output Wattage	2650	2650	2650	2650	2650
Nominal Input Current (A rms)	14.5	13.9	13.1	12.5	12.0
Maximum Rated Input Wattage Rating (Watts)	2898	2901	2904	2887	2884
Maximum Rated VA (Volt-Amp)	2896	2888	2887	2882	2878
Efficiency (%) at Max. Rated Output Wattage	91.4	91.3	91.2	91.8	91.9
Power Factor	0.98				
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100				
Maximum Inrush Current duration (mS)	10				
Maximum British Thermal Unit Rating (BTU-Hr)	9888	9899	9910	9850	9840

HPE 2400 Watts Platinum Hot Plug Power Supply					
Part Number	588603-B21				
Input Voltage Range (V rms)	200-240				
Frequency Range (Nominal) (Hz)	50 / 60				
Nominal Input Voltage (Vrms)	200	208	220	230	240
Maximum Rated Output Wattage	2450	2450	2450	2450	2450
Nominal Input Current (A rms)	13.9	13.4	12.6	12.0	11.4
Maximum Rated Input Wattage Rating (Watts)	2692	2692	2678	2678	2663
Maximum Rated VA (Volt-Amp)	2778	2778	2762	2762	2747
Efficiency (%) at Max. Rated Output Wattage	91	91	91.5	91.5	92
Power Factor	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.97	1.01	1.06	1.11	1.16
Maximum Inrush Current (A peak)	100	100	100	100	100
Maximum Inrush Current duration (mS)	10	10	10	10	10
Maximum British Thermal Unit Rating (BTU-Hr)	9888	9186	9136	9136	9086

Power	**Input Requirements - Single Phase Model**	Rated input frequency	50 to 60 Hz	
		2400W PSU	Rated input voltage	200 to 240 VAC
			Rated input current per power supply	13.9 A at 200 V ac 13.3 A at 208 V ac 12.6 A at 220 V ac
			Rated input power per power supply	2780 VA
		Rated input Frequency	50 to 60 Hz	
		2650W PSU	Rated input voltage	200 to 240 VAC

Power Specifications

		Rated input current per power supply	14.4 A at 200 VAC 13.8 A at 208 VAC
		Rated input power per power supply	2880 VA
Input Requirements - Three Phase NA/JPN Model	Rated input voltage	200 to 208 VAC Line to Line 3-Phase Delta	
	Rated input frequency	50 to 60 Hz	
	2400W PSU	Max input current per line cord	24 A at 200 V ac 23.1 A at 208 V ac
		Max input power per line cord	8340 VA max
	Rated input Frequency 2650W PSU	Max input current per line cord	14.4 A at 200 VAC 13.8 A at 208 VAC
		Max input power per line cord	2880 VA

Technical Specifications

HPE Apollo 6000 Power Shelf

Power Supply Slots	Six (6)	
Physical characteristics	**Dimensions** (L x W x D)	30.88 x 17.64 x 2.55 in (78.44 x 44.81 x 6.47 cm)
	Shipping dimension (L x W x D)	39.37 x23.63 x 13 in (100 x 60 x 45.7 cm)
	Weight Maximum	60 lb (27.22 kg)
	Minimum	20 lb (9.07 kg)
Environment	**Operating temperature**	32°F to 131°F (0°C to 55°C)
	Operating relative humidity	15% to 95%, noncondensing
	Non-operating/Storage temperature	-40°F to 158°F (-40°C to 70°C)
	Non-operating/Storage relative humidity	15% to 95%, noncondensing
	Altitude	up to 9,842 ft (3 km)
	Acoustic	Power: 69.1 dB, Pressure: 53.1 dB Acoustic ratings are absolute max sound levels with 3 modular power supplies and max output power
Electrical characteristics	**DC voltage**	Power supplies can supply 12VDC.
	Maximum power rating	3150 W
	PoE power	2100 W
	RPS	12VDC
	Frequency	50/60 Hz
	Notes	Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	GOST R MEK60950; EN62479:2010; UL 60950-1 2nd Edition; CSA C22.2 No. 60950-1-07 2nd Edition; EN 60950-1:2006+A11:2009+A1:2010+A12:2011; IEC 60950-1:2005, Amd 1: 2009	
Emissions	FCC Rules Part 15, Subpart B Class A; VCCI Class A; BSMI CNS 13438; AS/NZS CISPR 22 Class A; KCC Class A; EN 55022:2010; EN 61000-3-3:2008; EN 6100-3-2:2006+A1:2009 + A2:2009; GOST R 51318.22	
Immunity	**Generic**	EN55024:2010
	ESD	IEC 61000-4-2:2008
	Radiated	IEC 61000-4-3:2010
	EFT/Burst	IEC 61000-4-4:2012
	Surge	IEC 61000-4-5:2005
	Conducted	IEC 61000-4-6:2008
	Power frequency magnetic field	IEC 61000-4-8:2009

Technical Specifications

	Voltage dips and interruptions	IEC 61000-4-11:2004
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	

Summary of changes

Date	Version History	Action	Description of Change
15-Aug-2016	From version 3 to 4	Updated	Updates throughout the all document.
29-Apr-2015	From version 2 to 3	Changed	Update the configuration section
13-Jun-2014	From Version 1 to 2	Changed	Service and Support were revised.

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c04293375 - 14976 - Worldwide - V4 - 15-August-2016