

HQ-BOX

Quick Selection Guide

Revision 1.11

March 2018

1. HQ-BOX Embedded Server

HQ-BOX is a series of rugged compact embedded fanless servers, based on Intel® Xeon® D-1500 CPU. HQ-BOX supports up to 16 Cores, 128GB DDR4 ECC, 2x 10Gb SFP+, and more features for embedded systems with multiple IO peripherals under extended temperature range.

Typical HQ-BOX applications include Multi-Access Edge Computing (MEC), Edge Servers, FOG Servers, Radio access networks (RAN), Industrial automation and control, IoT Gateway, Private Cloud, Communication, Transportation, Medical, MicroServer and more.

Heptagon Systems provides flexible selection of HQ-BOX models optimized to fit different use cases. HQ-BOX models comprise varying combinations of extensions, CPU, memory, storage and networking capacity and give you the flexibility to choose the appropriate mix of resources for your applications. The HQ-BOX is offered in the two form factors: **COMPACT** and **EXTENDED**.

The **HQ-BOX COMPACT** models come in small form factor (SFF) and provide add-on extension with FHHL PCIE x16 and 2x 2.5” bays of SATA / NVMe U.2 SSD / HDD.

The **HQ-BOX EXTENDED** models provide up to 3 add-on FHHL¹ PCIE x8, PCIE x4 slot extensions, 4x 2.5” bays of SATA / NVMe U.2 SSD / HDD. Total available power is up to 70W under wide temperature range. The below table emphasizes the key differences between models:

MODEL	FORM FACTOR	SPECIAL FEATURES
HQ-BOX STORAGE/2	COMPACT	+ 2x 2.5” bays of SATA / NVMe U.2 SSD / HDD + additional M.2 PCIe x4 NVMe / SATA3.0 SSD
HQ-BOX 1F	COMPACT	+ FHHL PCIE x16, Gen3.0 + additional M.2 SATA3.0 SSD
HQ-BOX BARE	COMPACT	Basic model, no extensions
HQ-BOX COMBO	EXTENDED	+ 2x 2.5” bays of SATA / NVMe U.2 SSD / HDD + FHHL PCIE x8, Gen3.0

¹ FHHL-Full-Height Half Length add-on card

HQ-BOX STORAGE	EXTENDED	+ 4x 2.5”bays of SATA / NVMe U.2 SSD / HDD
HQ-BOX 2x	EXTENDED	+ 2x FHHL PCIE x8, Gen3.0
HQ-BOX 3x	EXTENDED	+ 2x FHHL PCIE x4, Gen3.0 + 1x FHHL PCIE x8, Gen3.0



COMPACT

HQ-BOX STORAGE/2

HQ-BOX 1F

HQ-BOX BARE



EXTENDED

HQ-BOX COMBO

HQ-BOX STORAGE

HQ-BOX 2X

HQ-BOX 3X

Interface / Feature	HQ-BOX COMPACT			HQ-BOX EXTENDED			
	STORAGE/2	1F	BARE	COMBO	STORAGE	2X	3X
CPU²							
CPU, 16 Cores	Xeon® D-1587, Xeon® D-1577,						
CPU, 12 Cores	Xeon® D-1567, Xeon® D-1559-eTEMP,						
CPU, 8 Cores	Xeon® D-1548, Xeon® D-1539-eTEMP, Xeon® D-1537						
CPU, 4 Cores	Xeon® D-1527						
Memory							
DDR4	128GB ECC RDIMM, 2400/2133, 4-Slots						
PCIe FHHL							
PCIe3.0 x16	-	1	-	-	-	-	-
PCIe3.0 x8	-	-	-	1	-	2	1
PCIe3.0 x4	-	-	-	-	-	-	2
Storage							
U.2 2.5" NVMe PCIE x4 +SATA3 SSD / HDD	2	-	-	2	4	-	-
M.2 NVMe PCIE x4 SSD	2	1 + (1 Optional / PX-1M*)					
M.2 SATA 3.0 SSD	2	1 + (1 Optional / PX-1M*)					
Networking							
10G X552 SPF+	2 / HX-E10 (Optional)						
1G I210 LAN	2						
Video							
VGA, 1920x1200	AST2400						
NGFF / mPCIe slots							
M.2-B	SATA3.0, USB3.0, USB2.0, uSIM, 3042						
M.2-E	PCIe2.0 x1, USB2.0, 3042, 3030						
mini PCIe	PCIe2.0 x1, USB2.0, uSIM, half mPCIe						

² More CPU options are available for MOQ>50 units.

Interface / Feature	HQ-BOX COMPACT			HQ-BOX EXTENDED			
	STORAGE/2	1F	BARE	COMBO	STORAGE	2X	3X
Connectors I/O							
USB3.0 / USB2.0	4						
USB2.0 Internal	1						
SATA3.0	4						
AUDIO	2, In/Out						
SERIAL	2, RS232, Rx/Tx						
Digital I/O	16 (8IN / 8OUT), optically isolated / HX-DIO (Optional)						
Management							
BMC	AST2400, IPMI 2.x, DCMI, iKVM, Virtual Storage						
1G LAN	Dedicated, RTL8211 based						
TPM							
TPM 2.0	AES, HMAC, SHA-1, SHA-256, RSA1024, RSA2048, ECDH, ECC256, ECC-NIST, P-256, ECC BN-256, ECC						
Operating voltage and power							
Input	13.6V-24V DC						
Max. power	110W			200W			
Mechanical							
Dimensions	98x195x200 mm			154x195x200 mm			
Weight	3.5kg + add-ons			4.5kg + add-ons			
Operating temperature							
Cooling	FANLESS						
STANDARD	0°C to +50°C						
EXTENDED	-20°C to +60°C						
EXTENDED-S	-			-30°C to +72°C Xeon® D-1559, Xeon® D-1539			
Storage temperature							
STANDARD	-40°C to +85°C						
OS support							
WINDOWS	Win7, Win10, 2008R2, Server 2012R2, Server 2016						
LINUX	All major distributions						
Other	VMware ESXi 6.5						

EMC	
EU	EN 55024:2010, EN55032: 2012+AC(13) Class B, EN61000-3-2: 2014, EN61000-3-3: 2013
USA	FCC 47CFR part 15: 2015, subpart B, Class B
AUS/NZ	AS/NZS CISPR 32:2015, Class B
Safety	
EU	EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013 IEC 60950-1:2005 (Second Edition)+Am1:2009+Am2:2013
AUS/NZ	AS/NZS 60950.1: 2015
Environmental³	
Vibration	ETSI EN 300 019-2-5 V3.0.0:2002-12
Shocks	
Bump	

³ Using vibration mount, sold as accessory

2. HQ-BOX resources:

HQ-BOX COMPACT	
HQ-BOX STORAGE/2	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%20STORAGE_2-EDS.pdf
HQ-BOX 1F	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%201F-EDS.pdf
HQ-BOX BARE	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%20BARE-EDS.pdf
HQ-BOX EXTENDED	
HQ-BOX COMBO	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%20COMBO-EDS.pdf
HQ-BOX STORAGE	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%20STORAGE-EDS.pdf
HQ-BOX 2X	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX_2x-EDS.pdf
HQ-BOX 3X	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX_3x-EDS.pdf
HQ-BOX COMMON	
User Manual	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-Box%20users%20manual.pdf
Extension Manual	<u>T.B.D</u>
Mechanical Dimensions	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HQ-BOX%20external%20dimensions.pdf
Certification	<u>T.B.D</u>
HX-DIO	http://www.heptagonsystems.com/cms/wp-content/documents/HQ-Box/HX-DIO-EDS.pdf
HEPTAGON SYSTEMS	
Website	http://www.heptagonsystems.com/
Products	http://www.heptagonsystems.com/cms/products/
Sales	sales@heptagonsystems.com
Support	https://support.hptsys.com/
Intel® Xeon® D-1500 links	
Intel® Xeon® Processor D-1500 Product Family Product Brief	https://www.intel.com/content/www/us/en/processors/xeon/xeon-processor-d-brief.html

Intel® Xeon® D-1500 Product Family Datasheet, Vol. 1	https://www.intel.com/content/www/us/en/processors/xeon/xeon-d-1500-datasheet-vol-1.html
Intel® Xeon® Processor D-1500 Product Family Datasheet, Vol. 2	https://www.intel.com/content/www/us/en/processors/xeon/xeon-d-1500-datasheet-vol-2.html
Intel® Xeon® Processor D-1500 Product Family Datasheet, Vol. 3	https://www.intel.com/content/www/us/en/processors/xeon/xeon-d-1500-datasheet-vol-3.html
Intel® Xeon® Processor D-1500 Product Family Datasheet, Vol. 4	https://www.intel.com/content/www/us/en/processors/xeon/xeon-d-1500-datasheet-vol-4.html

3. Revision notes

Revision	Date	Revision notes
1.0	22-03-2018	Preliminary release
1.1	27-03-2018	Naming change. Added intro and model descriptions. Added more resources links. Cosmetic changes.
1.11	30-03-2018	Cosmetic changes.

4. Copyright Notice

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