

Thunder CGN Physical Appliance Specifications

Performance	Thunder 840 CGN	Thunder 940 CGN	Thunder 1040 CGN	Thunder 3040 CGN
Throughput	5 Gbps	10 Gbps	20 Gbps	30 Gbps
Full TCP Connections Per Second	120K	120K	300K	500K
Concurrent Sessions	16 Million	16 Million	32 Million	64 Million
Application Delivery Partitions (ADP)	32	32	32	64
Network Interface				
1 GE (BASE-T)	5	5	5	6
1 GE Fiber (SFP)	0	0	0	2
1/10 GE Fiber (SFP+)	2	4*	4*	4
Management Ports	Ethernet Mgmt. Port, RJ-45 Console Port			Ethernet Mgmt. Port, RJ-45 Console Port, Lights Out Management
Hardware Specifications				
Processor	Intel Communication Processor	Intel Communication Processor	Intel Communication Processor	Intel Xeon 4-core
Memory (ECC RAM)	8 GB	8 GB	8 GB	16 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	Software	Software	Software	Software
Dimensions (Inches)	1.75 (H) x 17 (W) x 12 (D)	1.75 (H) x 17.5 (W) x 17.25 (D)	1.75 (H) x 17.5 (W) x 17.25 (D)	1.75 (H) x 17.5 (W) x 17.45 (D)
Rack Units (Mountable)	1U	1U	1U	1U
Unit Weight	8.8 lbs	14 lbs 16lbs (RPS)	15 lbs 17 lbs (RPS)	20.6 lbs
Power Supply (DC option available)	Single 150W (AC only) 100 - 240 VAC, 50-60Hz	Single 750W*2	Single 750W*2	Dual 600W RPS
Power Consumption (Typical/Max)*1	57W / 75W	60W / 80W	80W / 110W	180W / 240W
Heat in BTU/Hour (Typical/Max)*1	195 / 256	205 / 273	273 / 376	615 / 819
Cooling Fan	Single Fixed Fan	Removable Fans	Removable Fans	Hot Swap Smart Fans
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software			

Thunder CGN Physical Appliance Specifications (Cont.)

Performance	Thunder 3350-E CGN	Thunder 3350 CGN	Thunder 3350S CGN	Thunder 4430 CGN
Throughput	30 Gbps	40 Gbps	40 Gbps	38 Gbps
Full TCP Connections Per Second	500K	900K	1.5 Million	1 Million
Concurrent Sessions	64 Million	96 Million	128 Million	128 Million
Application Delivery Partitions (ADP)	64	127	1,023	127
Network Interface				
1 GE Copper	6	6	6	0
1 GE Fiber (SFP)	2	6	2	0
1/10 GE Fiber (SFP+)	8 + 4 ⁴	4 ⁴	8 + 4 ⁴	16
25 GE Fiber (SFP28)	0	4	0	0
40 GE Fiber (QSFP+)	0	4	0	4
Management Ports	Ethernet Mgmt. Port, RJ-45 Console Port, Lights Out Management			
Hardware Specifications				
Processor	Intel Xeon 8-core	Intel Xeon 8-core	Intel Xeon 14-core	Intel Xeon 6-core
Memory (ECC RAM)	16 GB	32 GB	64 GB	32 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	Software	Software	Software	FTA-3
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 18(D)	1.75 (H) x 17.5 (W) x 18(D)	1.75 (H) x 17.5 (W) x 18(D)	1.75 (H) x 17 (W) x 24.6 (D)
Rack Units (Mountable)	1U	1U	1U	1U
Unit Weight	18 lbs	18 lbs	18 lbs	25.2 lbs
Power Supply (DC option available)	Dual 750W RPS	Dual 750W RPS	Dual 750W RPS	Dual 600W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (Typical/Max) ¹	151W / 205W	165W / 238W	175W / 222W	266W / 319W
Heat in BTU/Hour (Typical/Max) ¹	516 / 700	564 / 831	598 / 758	908 / 1,088
Cooling Fan	Hot Swap Smart Fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, KCC, BSMI, RCM RoHS, FIPS 140-2 ^{1,3}
Standard Warranty	90-Day Hardware and Software			

Thunder CGN Physical Appliance Specifications (Cont.)

Performance	Thunder 4440 CGN	Thunder 5440 CGN	Thunder 5840 CGN	Thunder 5840-11 CGN
Throughput	78 Gbps	100 Gbps	115 Gbps	115 Gbps
Full TCP Connections Per Second	1.2 Million	2.2 million	3 Million	3.2 Million
Concurrent Sessions	128 Million	256 Million	256 Million	256 Million
Application Delivery Partitions (ADP)	127	1,023	1,023	1,023
Network Interface				
1/10 GE Fiber (SFP+)	24	24	24	48
40 GE Fiber (QSFP+)	4	4	4	0
100 GE Fiber (QSFP28)	0	0	0	4
Management Ports	Ethernet Mgmt. Port, RJ-45 Console Port, Lights Out Management			
Hardware Specifications				
Processor	Intel Xeon 6-core	Intel Xeon 12-core	Intel Xeon 18-core	Intel Xeon 18-core
Memory (ECC RAM)	32 GB	64 GB	64 GB	64 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	2 x FTA-4	2 x FTA-4	2x FTA-4	2x FTA-4
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)
Rack Units (Mountable)	1U	1U	1U	1U
Unit Weight	32.5 lbs	32.5 lbs	32.5 lbs	34.3 lbs
Power Supply (DC option available)	Dual 1100W RPS	Dual 1100W RPS	Dual 1100W RPS	Dual 1500W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (Typical/Max) ¹	360W / 445W	360W / 445W	375W / 470W	550W / 760W
Heat in BTU/Hour (Typical/Max) ¹	1,229 / 1,519	1,229 / 1,519	1,280 / 1,604	1,877 / 2,594
Cooling Fan	Hot Swap Smart Fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC*, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software			

Thunder CGN Physical Appliance Specifications (Cont.)

Performance	Thunder 6440 CGN	Thunder 7440 CGN	Thunder 7440-11 CGN	Thunder 7650 CGN
Throughput	160 Gbps	220 Gbps	220 Gbps	370 Gbps
Full TCP Connections Per Second	3 Million	5 Million	5 Million	8 Million
Concurrent Sessions	256 Million	256 Million	256 Million	384 Million
Application Delivery Partitions (ADP)	1,023	1,023	1,023	1,023
Network Interface				
1/10 GE Fiber (SFP+)	48	48	48	0
40 GE Fiber (QSFP+)	4	4	0	0
100 GE Fiber (QSFP28)	0	0	4	16
Management Ports	Ethernet Mgmt. Port, RJ-45 Console Port, Lights Out Management			
Hardware Specifications				
Processor	2 x Intel Xeon 10-core	2 x Intel Xeon 18-core	2 x Intel Xeon 18-core	2 x Intel Xeon 24-core
Memory (ECC RAM)	128 GB	128 GB	128 GB	192 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	3 x FTA-4	3 x FTA-4	3 x FTA-4	2 x FTA-5
Dimensions (inches)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	2.625 (H) x 17.5 (W) x 30 (D)
Rack Units (Mountable)	1U	1U	1U	1.5U
Unit Weight	36 lbs	35.7 lbs	35.7 lbs	41.5 lbs
Power Supply (DC option available)	Dual 1100W RPS	Dual 1100W RPS	Dual 1500W RPS	Dual 1500W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (Typical/Max) ^{*1}	480W / 550W	690W / 820W	784W / 950W	864W / 1,091W
Heat in BTU/hour (Typical/Max) ^{*1}	1,638 / 1,877	2,355 / 2,798	2,676 / 3,242	2,949 / 3,722
Cooling Fan	Hot Swap Smart Fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, GS, CB, VCCI, CCC, BSMI, RCM RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC, KCC, BSMI, RCM RoHS, FIPS 140-2 ^{*3}	FCC Class A, UL, CE, GS, CB, VCCI, CCC [^] , KCC [^] , BSMI, RCM RoHS	FCC Class A [^] , UL [^] , CE [^] , GS [^] , CB [^] , VCCI [^] , CCC [^] , KCC [^] , BSMI [^] , RCM [^] RoHS
Standard Warranty	90-Day Hardware and Software			

The specifications, performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions. As for network interface, it's highly recommended to use A10 Networks qualified optics/transceivers to ensure network reliability and stability.

*1 With base model. Number varies by SSL model | *2 Optional RPS | *3 FIPS model must be purchased | *4 10 Gbps speed only | ^ Certification in process

Thunder CGN SPE Physical Appliance Specifications (Cont.)

Performance	Thunder 4435 CGN	Thunder 5845 CGN	Thunder 7445 CGN	Thunder 14045 CGN Dual Modules
Throughput	38 Gbps	115 Gbps	220 Gbps	300 Gbps
Full TCP Connections Per Second	1.4 Million	3.2 Million	5 Million	8 Million
Concurrent Sessions	128 Million	256 Million	256 Million	512 Million
Selective Dynamic Filter Rate [PPS] [†]	55 Million	166 Million	332 Million	450 Million
Selective Dynamic Filter Hardware Entries (IPv4/IPv6)	256K / 128K	256K / 128K	256K / 128K	512K / 256K
Application Delivery Partitions	1,023	1,023	1,023	1,023
Network Interface				
1/10 GE Fiber (SFP+)	16	48	48	0
40 GE Fiber (QSFP+)	0	0	0	4
100 GE Fiber	0	4 (QSFP28)	4 (QSFP28)	4 (CFP or QSFP28)
Management Ports	Ethernet Mgmt. Port, RJ-45 Console Port*, Lights Out Management			
Hardware Specifications				
Processor (Intel Xeon)	10-core	18-core	2 x 18-core	4 x 18-core
Memory (ECC RAM)	64 GB	64 GB	128 GB	512 GB
Storage	SSD	SSD	SSD	SSD
Hardware Acceleration	FTA-3, SPE	2 x FTA-4, SPE	3 x FTA-4, SPE	8 x FTA-3, SPE
Dimensions (Inches)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	1.75 (H) x 17.5 (W) x 30 (D)	5.3 (H) x 16.9 (W) x 28 (D)
Rack Units (Mountable)	1U	1U	1U	3U
Unit Weight	34.5 lbs	34.3 lbs	35.7 lbs	102 lb
Power Supply (DC option available)	Dual 1100W RPS	Dual 1500W RPS	Dual 1500W RPS	2+2 1100W RPS
	80 Plus Platinum Efficiency, 100 - 240 VAC, 50 - 60 Hz			
Power Consumption (Typical/Max) [‡]	350W / 420W	585W / 921W	784W / 1,078W	1,700W / 2,000W
Heat in BTU/Hour (Typical/Max) [‡]	1,195 / 1,433	1,997 / 3,143	2,676 / 3,679	5,801 / 6,825
Cooling Fan	Hot Swap Smart Fans			
Operating Ranges	Temperature 0° - 40° C Humidity 5% - 95%			
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI, CCC, MSIP, BSMI, RCM, EAC, NEBS RoHS	FCC Class A, UL, CE, GS, CB, VCCI, CCC*, BSMI, RCM RoHS*	FCC Class A, UL, CE, GS, CB, VCCI, CCC*, BSMI, RCM RoHS*	FCC Class A, UL, CE, GS, CB, VCCI, CQC, KCC, BSMI, RCM RoHS
Standard Warranty	90-Day Hardware and Software			

The specifications, performance numbers are subject to change without notice, and may vary depending on configuration and environmental conditions. As for network interface, it's highly recommended to use A10 Networks qualified optics/transceivers to ensure network reliability and stability.

[†] Packets per second. Hardware-based selective dynamic filtering feature is available on Thunder CGN SPE family |

* With base model. Number varies by SSL model | + Thunder 14045 comes with a splitter cable for console to provide access to both modules.

A10 Thunder on Dell Technologies OEM Solution Bundle Specifications

Thunder on Dell Technologies OEM Solution Bundle

A single service platform consists of A10's cloud-ready software and purpose built Dell Technologies hardware, available for Carrier Grade Networking (CGN), Application Delivery Controller (ADC) or SSL Insight (SSLi) solution.

	Dell Technologies VEP4600	Dell Technologies R640	Dell Technologies R740
Thunder CGN Performance			
Throughput	12 Gbps	30 Gbps	60 Gbps
Full TCP Connections Per Second	500K	1.5 Million	2 Million
Concurrent Sessions	50 Million	100 Million	100 Million
Network Interface			
1 GE (BASE-T)	6	2	2
1/10 GE Fiber (SFP+)	4	6	10
Hardware Specifications			
Processor	Intel Xeon 8-core	2 x Intel Xeon 20-core	2 x Intel Xeon 20-core
Memory	16 GB	192 GB	192 GB
Storage	SSD	2 x SSD	2 x SSD
TLS/SSL Security Processor	Built-in	2 x Security card (PCIe)	2 x Dual-chip security card (PCIe)
Power Supply	Single 230W Power Supply	Dual 750W Power Supply	Dual 2000W Power Supply

Thunder MVP on Dell Technologies OEM Solution Bundle

A10 Thunder Multi-tenant Virtual Platform (MVP) on Dell Technologies is an advanced platform enabling multiple virtual instances or services on a single platform. The available choice of vThunder services are ADC, CGN and/or SSLi.

	Dell Technologies R640	Dell Technologies R740
Performance with CGNAT		
Throughput	32 Gbps	56 Gbps
Full TCP Connections Per Second	750K	1.5 Million
Concurrent Sessions	100 Million	140 Million
Network Interface		
1 GE (BASE-T)	2	2
1/10 GE Fiber (SFP+)	6	10
Hardware Specifications		
Processor	2 x Intel Xeon 20-core	2 x Intel Xeon 20-core
Memory	192 GB	192 GB
Storage	2 x SSD	2 x SSD
TLS/SSL Security Processor	2 x Security card (PCIe)	2 x Dual-chip security card (PCIe)
Power Supply	Dual 750W Power Supply	Dual 2000W Power Supply

All Thunder MVP performance are aggregated number using the following VM profiles:

- R640 is tested with 4-VM profile (8 vCPUs, 16GB memory, 100GB storage, 16 SSL virtual functions (VFs) assigned on each vThunder)
- R740 is tested with 8-VM profile (8 vCPUs, 16GB memory, 100GB storage, 16 SSL VFs assigned on each vThunder)

Thunder CGN Virtual Appliance Specifications

vThunder CGN

Supported Hypervisors	VMware ESXi 5.0 or higher (VMXNET3, SR-IOV, PCI Passthrough) KVM QEMU 1.0 or higher (VirtIO, OvS with DPDK, SR-IOV, PCI Passthrough) Microsoft Hyper-V on Windows Server 2008 R2 or higher
Hardware Requirements	See Installation Guide
Standard Warranty	90-Day Software

Bandwidth Licenses	Lab	200 Mbps	1 Gbps	4 Gbps	8 Gbps	10 Gbps	20 Gbps	40 Gbps	100 Gbps	FlexPool
VMware ESXi	●	●	●	●	●	●	●*1	●*1 *2	●*2	●
KVM	●	●	●	●	●	●	●*1	●*1 *2	●*2	●
Microsoft Hyper-V	●	●	●	●	●+					●

*1 SR-IOV

*2 PCI Passthrough

+ 8 Gbps license not recommended for Microsoft Hyper-V

Thunder CGN for Bare Metal

System Requirements	Minimum Hardware Requirement <ul style="list-style-type: none"> • Intel x86-based CPUs with minimum of 4 cores • 16 GB RAM • 80 GB of free disk space • 2 Ethernet interfaces (3 or more are recommended) • Intel Network Adapters and drivers including igb, ixgbe, i40e and more
Reference Platforms	Cisco UCS, Dell PowerEdge, Ericsson Hyperscale Datacenter System (HDS), HP ProLiant and more
Bandwidth Licenses*	10 Gbps (4 cores), 20 Gbps (8 cores), 40 Gbps (14 cores) and 60 Gbps (24 cores) FlexPool
Standard Warranty	90-Day Software

* Licenses are tied with maximum number of cores which can be allocated to ACOS.

Thunder CGN Virtual Appliance Specifications (Cont.)

Thunder CGN Containers

Image Format	Docker
Operating System	Reference Operating System: <ul style="list-style-type: none">• Ubuntu 16.04.3 LTS (Xenial Xerus)• RedHat Enterprise Linux version 7.6
System Requirements	Minimum Requirement: <ul style="list-style-type: none">• 1 or more data interface• 1 vCPU and 4GB memory
Licenses	BYOL Bandwidth License: <ul style="list-style-type: none">• Up to 100 Gbps FlexPool License: <ul style="list-style-type: none">• Up to 100 Gbps
Performance Reference*	Maximum throughput on a single Thunder container (24 vCPUs, shared polling mode off) <ul style="list-style-type: none">• 1510B: 180 Gbps• 512B: 103 Gbps• IMIX : 75 Gbps
Standard Warranty	90-Day Software

* Supermicro 7049GP-TRT with Intel Xeon Platinum 8160 CPU @ 2.10GHz and 2x Mellanox Connect X-5 NICs. Tested with UDP traffic for CGN service.

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Part Number: A10-DS-15110-EN-23 NOV 2020