CAPTEC

cincoze™

DS-1500 Series

Rugged Embedded Computers

Key Benefits

- **AI-Ready Performance** with Intel® Core™ Ultra 200S processors delivering up to 36 TOPS
- **Expandable Architecture** with up to two PCI/PCIe slots and GPU support up to 130 W
- **High-Speed Memory** with up to 96 GB DDR5 memory at 6400 MHz
- **Flexible Connectivity** with 2.5GbE LAN, multiple USB ports and modular I/O expansion
- **Rugged Reliability** with 9–48 V DC input and MIL-STD-810H shock and vibration compliance



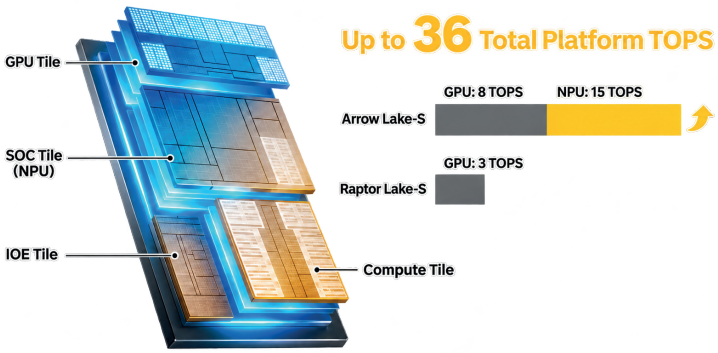
Overview

The DS-1500 Series comprises high-performance rugged embedded computers designed for smart manufacturing, railway and industrial edge AI applications. Powered by Intel® Core™ Ultra 200S processors, the series delivers up to 36 TOPS of AI performance and supports up to 96 GB DDR5 memory. Flexible CMI and CFM modules enable additional industrial I/O, while the DS-1501 and DS-1502 configurations provide one or two PCI/PCIe expansion slots. Fanless construction, wide-range DC power input and industrial-grade protection support reliable operation in demanding environments.

Certifications

EN 50121-3-2 MIL-STD-810H EN 45545-2 EN 62368-1 CB c UL us LISTED





TRIED, TESTED & **TRUSTED**

Specifications

Model Name	DS-1500	DS-1501	DS-1502
System			
Processor	▪ Arrow Lake-S Ultra 200S Series CPU: - Intel® Core™ Ultra 9 285 24 Cores Up to 5.6 GHz, TDP 65W - Intel® Core™ Ultra 9 285T 24 Cores Up to 5.4 GHz, TDP 35W - Intel® Core™ Ultra 7 265 20 Cores Up to 5.3 GHz, TDP 65W - Intel® Core™ Ultra 7 265T 20 Cores Up to 5.3 GHz, TDP 35W - Intel® Core™ Ultra 5 245 14 Cores Up to 5.1 GHz, TDP 65W - Intel® Core™ Ultra 5 245T 14 Cores Up to 5.1 GHz, TDP 35W - Intel® Core™ Ultra 5 225 10 Cores Up to 4.9 GHz, TDP 65W - Intel® Core™ Ultra 5 225T 10 Cores Up to 4.9 GHz, TDP 35W		
Chipset	▪ Intel W880 Chipset		
Memory	▪ 2x DDR5 SODIMM/CSODIMM Socket, Support Un-buffered and ECC Type - Ultra 9 / 7: Supports Up to 6400MHz, 96GB - Ultra 5: Supports Up to 5600MHz, 96GB * CSODIMM is supported by project		
BIOS	▪ AMI BIOS		
Graphics			
Graphics Engine	▪ Integrated Intel® Xe LPG Graphics		
Maximum Display Output	▪ Supports Quad Independent Display		
VGA	▪ 1x VGA Connector : 1920 x 1200@60Hz		
DP	▪ 2x DP Connector : 4096 x 2304@60Hz - Support cable switch HDMI® 4096 x 2160@30Hz * Verified maximum resolution: 3840x2160 @60Hz		
HDMI®	▪ 1x HDMI® Connector : 4096x2160@30Hz * Verified maximum resolution: 3840x2160 @30Hz		
Audio			
Audio Codec	▪ Realtek® ALC888, High Definition Audio		
Line-out	▪ 1x Line-out, Phone Jack 3.5mm		
Mic-in	▪ 1x Mic-in, Phone Jack 3.5mm		
I/O			
LAN	▪ 1x 2.5 GbE LAN, RJ45 - GbE1: Intel® I226 ▪ 1x GbE LAN, RJ45 - GbE2: Intel® I219		
COM	▪ 2x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9		
USB	▪ 2x 10Gbps USB 3.2 Gen2x1, Type A ▪ 4x 5Gbps USB 3.2 Gen1x1, Type A ▪ 2x 480Mbps USB 2.0, Type A		
PS/2	▪ 1 x PS/2, 6 Pin Mini-DIN Female Connector		
Storage / Expansion			
2.5" SSD / HDD	▪ 1x 2.5" Front Accessible SATA HDD/SSD Bay (SATA 3.0) ▪ 1x 2.5" Internal SATA HDD/SSD Bay (SATA 3.0)		
M.2 Key B Socket	▪ 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 4x2 / USB3.2 Gen2x1 / SATA 3.0), Support 5G / GNSS / Storage / Add-on Card Expansion ▪ 2x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x2 / USB2.0 / SATA), Support GNSS / Storage / Add-on Card Expansion		
M.2 Key M Socket	▪ 1x M.2 Key M Type 2280 Socket (PCIe Gen3 x4 / SATA 3.0), Support Storage / Add-on Card Expansion		

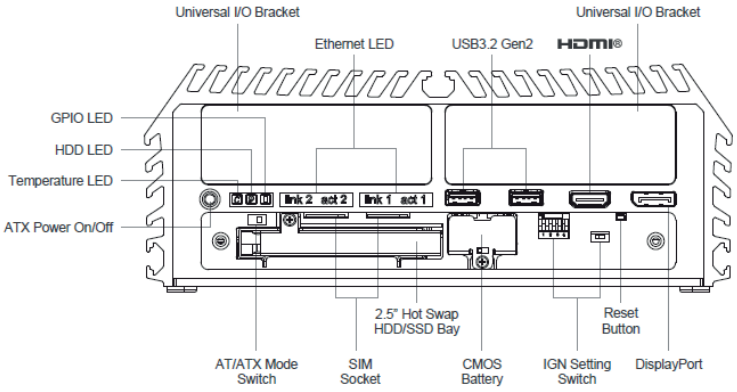
PCI Express		▪ 1 x PCI/PCIe Expansion Slot with Optional Riser Card * Supports maximum dimensions of add-on card (L x H) : 235 x 124 mm * Supports GPU card up to 75W	▪ 2 x PCI/PCIe Expansion Slot with Optional Riser Card * Supports maximum dimensions of add-on card (L x H) : 235 x 124 mm * Supports GPU card up to 130W
SIM	▪ 2x SIM Socket		
CMI (Combined Multiple I/O) Socket	▪ 2x High Speed CMI Interface for optional CMI Module Expansion ▪ 2x Low Speed CMI Interface for optional CMI Module Expansion		
CFM (Control Function Module) Socket	▪ 1x CFM IGN Interface for optional CFM-IGN Module Expansion ▪ 1x CFM-TPM Interface for optional CFM-TPM Module Expansion		
Other Function			
RAID	▪ Support RAID 0/1/5/10		
External FAN Connector	▪ 1x External FAN Connector, 4-pin Terminal Block (Support Smart Fan by BIOS)		
Power Ignition Sensing	▪ Support Power Ignition Sensing Function with Delay Time Management and Selectable 12V/24V (With Optional CFM Module)		
TPM	▪ Support Discrete TPM2.0 (with Optional CFM Module)		
Clear CMOS Switch	▪ 1x Clear CMOS Switch		
Reset Button	▪ 1x Reset Button		
Instant Reboot	▪ Support 0.2sec Instant Reboot Technology		
Watchdog Timer	▪ Software Programmable Supports 256 Levels System Reset		
Antenna Holes	▪ 2		
Power			
Power Button	▪ 1x ATX Power On/Off Button		
Power Mode Switch	▪ 1x AT/ATX Mode Switch		
Power Input	▪ 9 - 48VDC, 3-pin Terminal Block		
Remote Power On/Off	▪ 1x Remote Power On/Off, 2-pin Terminal Block		
Remote Power LED	▪ 1x Remote Power LED, 2-pin Terminal Block		
Max Power Consumption	▪ 35W CPU: 163W ▪ 65W CPU: 262.8W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing		
Inrush Current (Peak)	▪ 35W CPU: 5.812 A@24V ▪ 65W CPU: 5.983 A@24V		
Physical			
Dimension(W x D x H)	▪ 227 x 261 x 88 mm	▪ 227 x 261 x 108 mm	▪ 227 x 261 x 128 mm
Weight Information	▪ 4.9 kg	▪ 5.3 kg	▪ 5.7 kg
Mechanical Construction	▪ Extruded Aluminum with Heavy Duty Metal		
Mounting	▪ Wall Mount		
Physical Design	▪ Fanless Design ▪ Cableless Design ▪ Jumper-less Design ▪ Unibody Design		
Reliability & Protection			
Reverse Power Input Protection	▪ Yes		
Over Voltage Protection	▪ Protection Range: 51~58V ▪ Protection Type: shut down operating voltage, re-power on at the preset level to recover		

Over Current Protection	▪ 15A
CMOS Battery Backup	▪ SuperCap Integrated for CMOS Battery Maintenance-free Operation
MTBF	▪ 307,224 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3
Operating System	
Windows	▪ Windows® 11, Windows® 10
Linux	▪ Ubuntu 24.04
Environment	
Operating Temperature	▪ 35W TDP Processor: -40°C to 60°C (-40°F to 140°F) ▪ 65W TDP Processor: -40°C to 50°C (-40°F to 122°F) With External Fan Kit - With extended temperature peripherals; Ambient with air flow - According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14
Storage Temperature	▪ -40°C to 85°C (-40°F to 185°F)
Relative Humidity	▪ 95%@60°C (non-Condensing)
Shock	▪ MIL-STD-810H
Vibration	▪ MIL-STD-810H
EMC	▪ CE, UKCA, FCC, ICES-003 Class A
EMI	▪ CISPR 32 Conducted & Radiated: Class A ▪ EN/BS EN 50121-3-2 Conducted & Radiated: Class A ▪ EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A ▪ EN/BS EN61000-3-3 Voltage fluctuations & flicker ▪ FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	▪ EN/IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV ▪ EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 20 V/m ▪ EN/IEC 61000-4-4 EFT (with optional PPM module): AC Power: 2 kV; DC Power: 1 kV; Signal: 2 kV ▪ EN/IEC 61000-4-5 Surges: AC Power: 2 kV ▪ EN/IEC 61000-4-6 CS: 10V ▪ EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m ▪ EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz
Railway	▪ EMC: EN 50155: 2021 Clause 4.4.6, 13.4.9 - EN 50121-1 : 2017 - EN 50121-3-2: 2016 + A1: 2019
Fire Protection	▪ EN 45545-2
Safety	▪ UL, cUL, CB, IEC, EN 62368-1

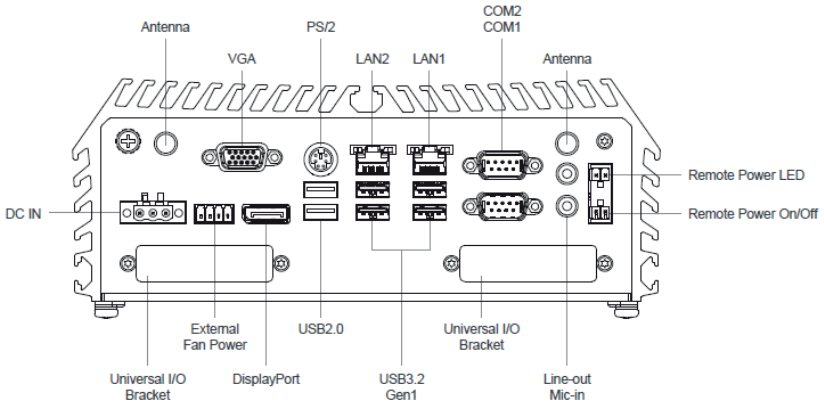
The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

DS-1500 External Layout

Front I/O

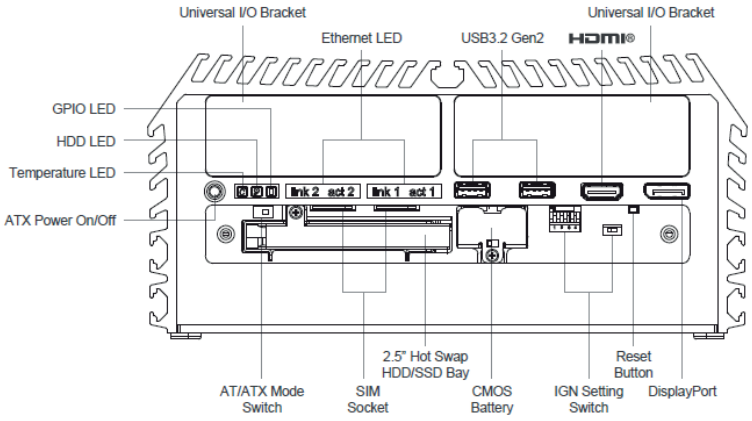


Rear I/O

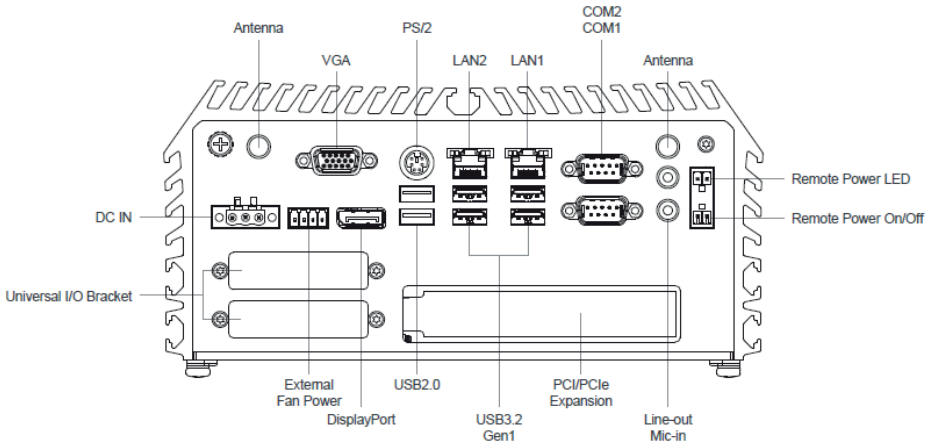


DS-1501 External Layout

Front I/O

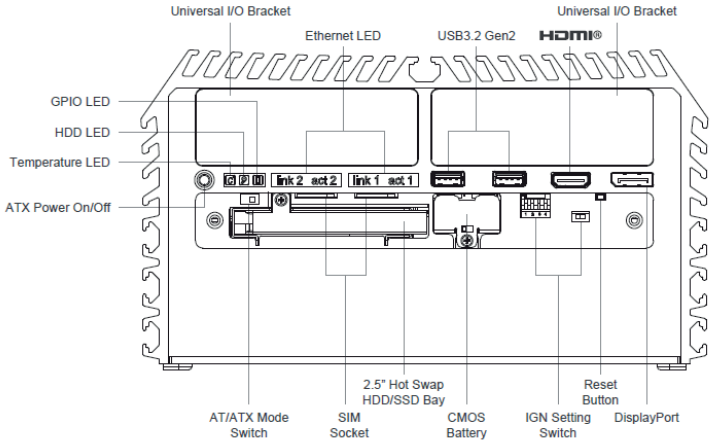


Rear I/O

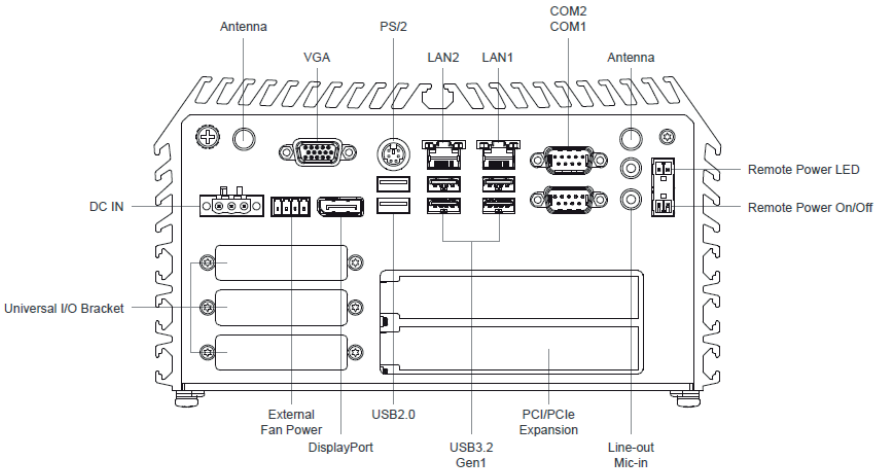


DS-1502 External Layout

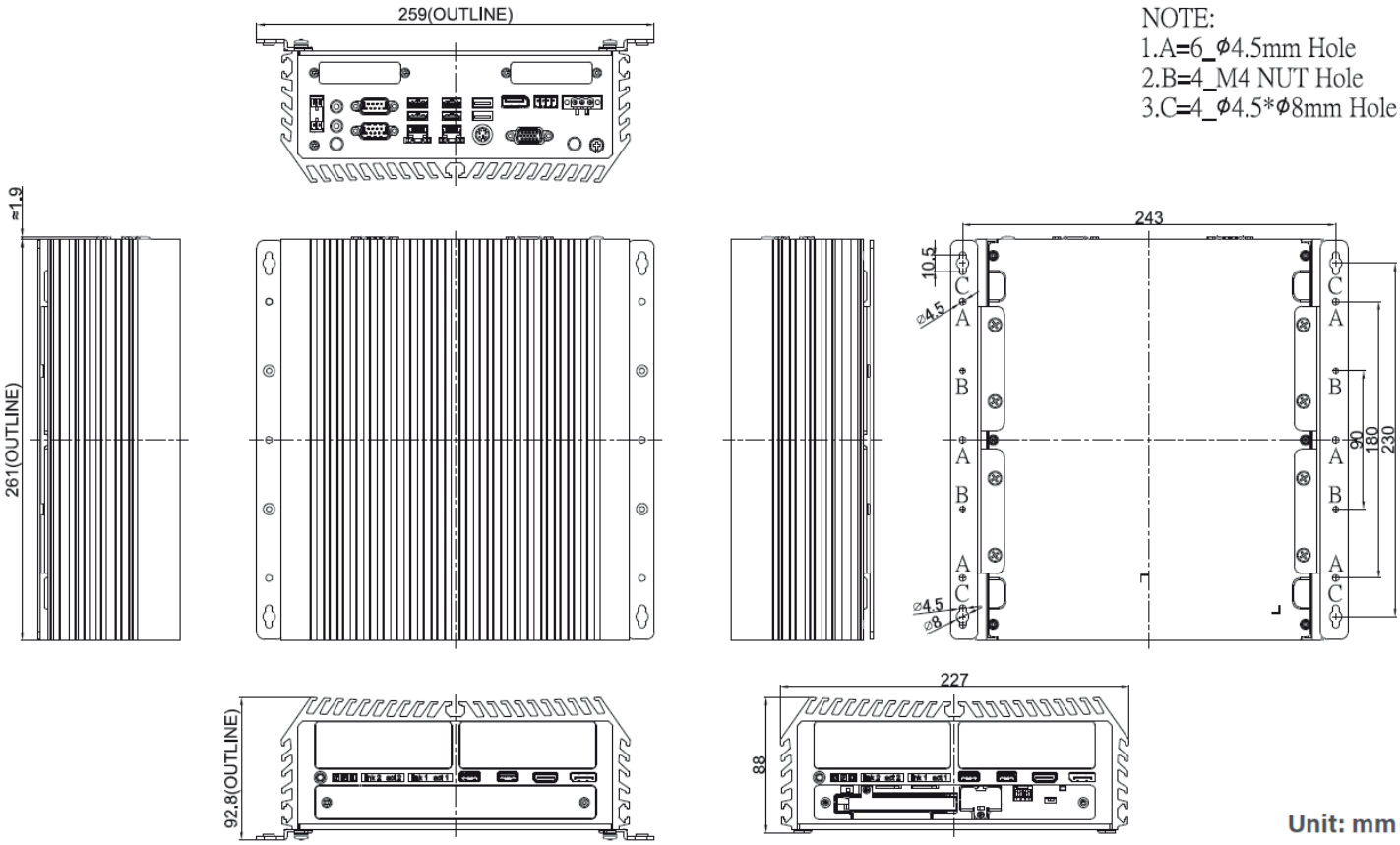
Front I/O



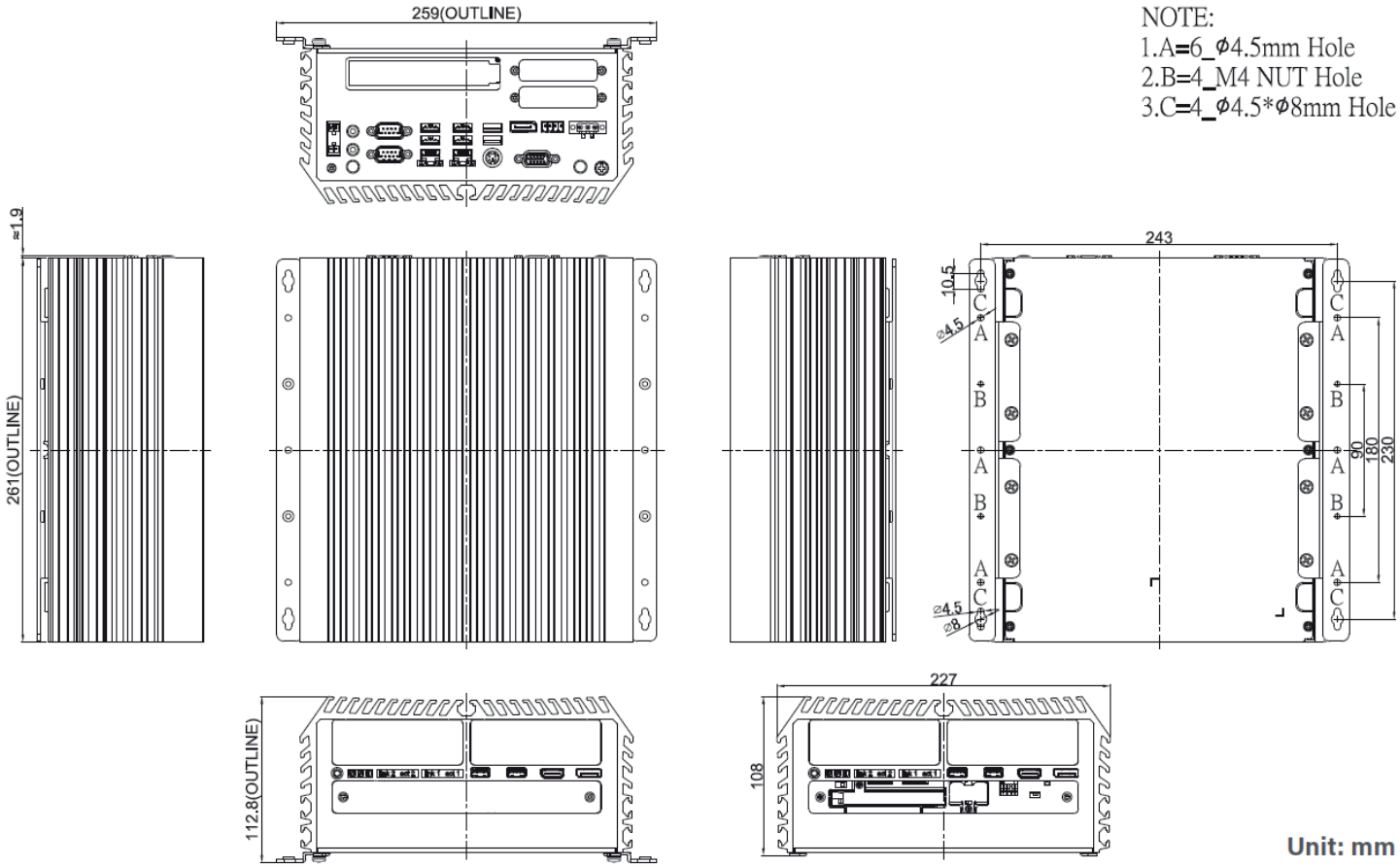
Rear I/O



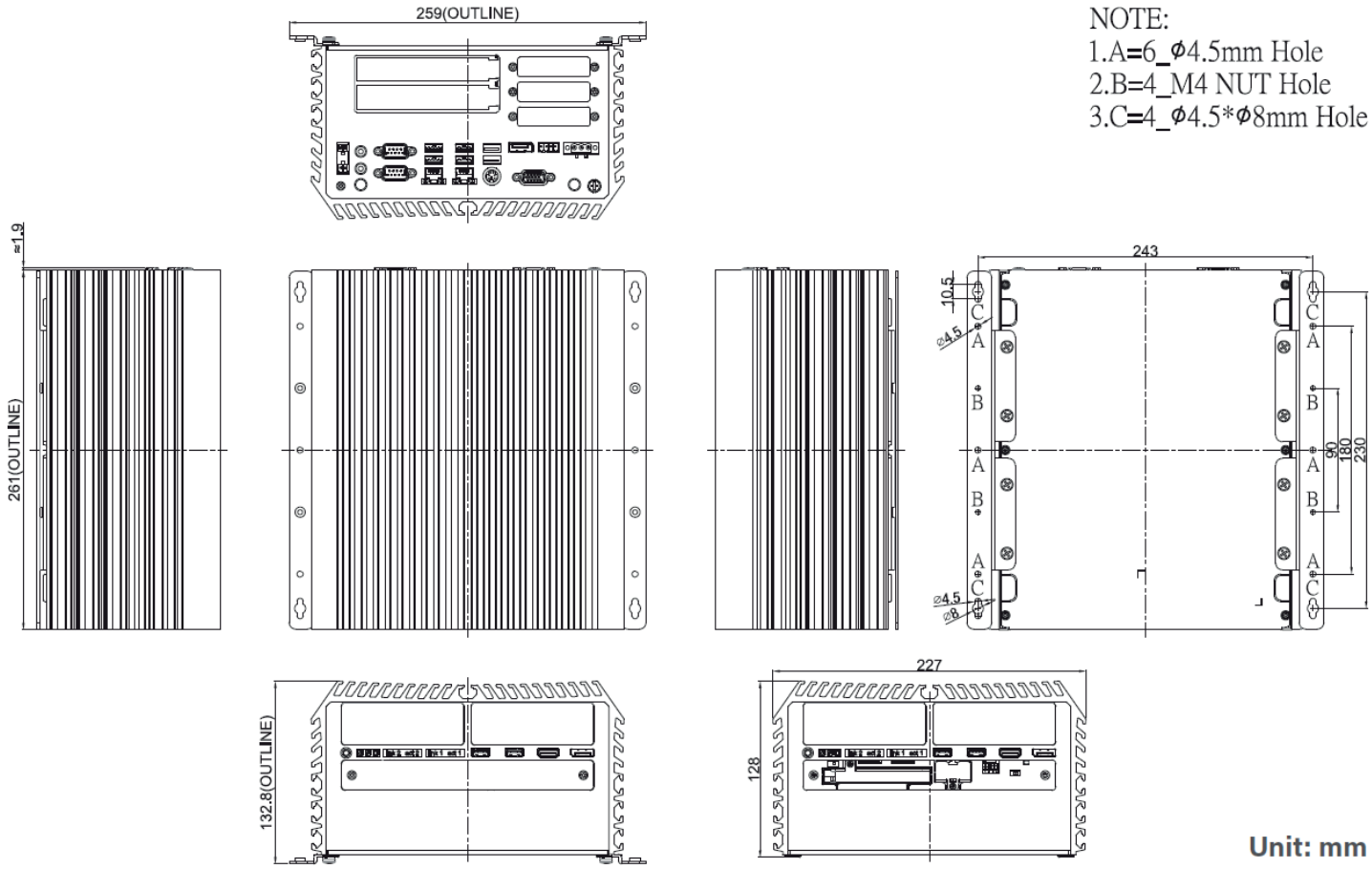
DS-1500 Dimensions



DS-1501 Dimensions



DS-1502 Dimensions



Ordering Information

Available Models

Model No.	Description
DS-1500-R10	Intel® Arrow Lake-S Core™ Ultra 200S Series Processors, High Performance and PCIe Expandable Rugged Embedded Computer
DS-1501-R10	Intel® Arrow Lake-S Core™ Ultra 200S Series Processors, High Performance and PCIe Expandable Rugged Embedded Computer, Supporting 1x PCI/PCIe Expansion Card
DS-1502-R10	Intel® Arrow Lake-S Core™ Ultra 200S Series Processors, High Performance and PCIe Expandable Rugged Embedded Computer, Supporting 2x PCI/PCIe Expansion Cards

Package Checklist

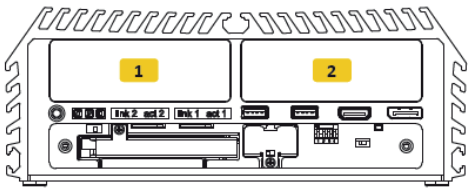
▪ DS-1500 Series Embedded System x 1	▪ Heatsink Pack x 1
▪ Wall Mounting Kit x 1	▪ Screw Pack x 1
▪ Power Terminal Block Connector x 1	▪ Remote Function Terminal Block Connector x 2
▪ Fan Terminal Block Connector x 1	▪ M.2 Key B Type 3052 to 3042 Adapter Bracket x 3

Optional Modules and Accessories

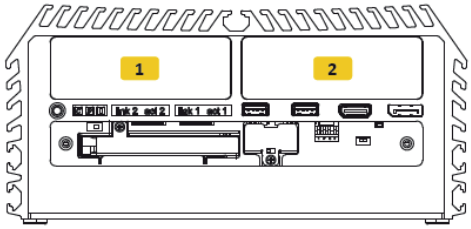
Model No.	Description
CMI-LAN01-R12	CMI Module with 4x RJ45 Intel I210 GbE LAN Ports
CMI-M12LAN01-R12	CMI Module with 4x M12 Intel I210 GbE LAN Ports
CMI-XM12LAN01-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports
CMI-2P5GLAN03-R10	CMI Module with 4x Intel 2.5GbE LAN, RJ45 Port
CMI-10GLAN03-R10	CMI Module with 2x Intel X550 10GbE LAN, RJ45 Port
CMI-10GXM12LAN03-R10	CMI Module with 2x Intel 10GbE LAN, M12 X-Coded Connector
CMI-CAN01-R10	CMI Module with 2x CAN FD Ports
CMI-COM02	CMI Module with 4x RS232/422/485 Serial Ports
CMI-ICOM01	CMI Module with 4x Electrical Isolated RS232/422/485 Serial Ports
CMI-DIO02	CMI Module with 16x Optical Isolated DIO (8 in/8 out)
CFM-PoE03	CFM Module with PoE Control Function, Individual Port 25.5W
CFM-IGN101	CFM Module with Power Ignition Sensing Control Function, 12V/24V Selectable
CFM-TPM01-R10	CFM Module with Hardware TPM 2.0
RC-E16-01	Riser Card with 1 x PCIex16 Slot
RC-PI-01	Riser Card with 1 x PCI Slot
RC-E8E8-R10	Riser Card with 2 x PCIex8 Slots
RC-E16E1-01	Riser Card with 1x PCIex16, 1x PCIex1 slots, supports GPU card up to 75W
RC-E16E1-02-R10	Riser Card with 1x PCIex16, 1x PCIex1 slots, and auxiliary power connector, supports GPU card up to 130W
RC-E16PI-01	Riser Card with 1x PCIex16 and 1x PCI Slots (PCIe x16 Slot Supports Single Deck Add-on Card)
RC-PIPI-01	Riser Card with 2x PCI Slots

AC-BE01-R10	M.2 Key B Type 2242 to M.2 Key E Type 2230 Adapter Card
UB1004	Universal Bracket with 4x DB9 Cutout
UB1010	Universal Bracket with 4x M12 Cutout
UB1012	Universal Bracket with 4x RJ45 Cutout
UB1018	Universal Bracket with DIO Cutout
UB1028	Universal Bracket with 2x RJ45 Cutout
UB1030-R10	Universal Bracket with 4x M12 X-Coded Cutout
UB1032-R10	Universal Bracket with 3x Antenna Cutout
UB1037-R10	Universal Bracket with 2x M12 X-coded Cutout
UB1038-R10	Universal Bracket with 2x DB9 and 1× Switch Cutout for CMI-CAN Expansion
UB0303	2x Universal Bracket each with 1x DB9 Cutout
UB0311	Universal Bracket with 2x RJ45 Cutout
UB0331-R10	Universal Bracket with 2x Antenna Hole
UB0337-R10	Universal Bracket with 1x USB Type C Cutout for MEC-USB (M.2 interface) Expansion
FAN-EX101	External Fan with 4pin Terminal Block Plug, Mounting Bracket, Support smart fan
FAN-UB100	Internal Exhaust Fan with 4pin Connector
FAN-UB101	Internal Intake Fan with 4pin Connector
MEC-LAN-2002i-S	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(0°C~+70°C), 2x RJ45 Connector, Cervoz
MEC-LAN-2002i	M.2 2242/2260/2280 (B+M key) 2-port 10/100/1000 isolated Ethernet board(-40°C~+85°C), 2x RJ45 Connector, Cervoz
MEC-LAN-2602i	M.2 2280 (B+M key) 2-port 2.5GbE isolated Ethernet board(-40°C~+85°C), 2x RJ45 Connector, Cervoz
MEC-COM-2012	M.2 2242/2260/2280 (B+M key) 2-port RS-232 serial board(-40°C~+85°C), 2x DB9 Connector, Cervoz
MEC-COM-2032i	M.2 2242/2260/2280 (B+M key) 2-port RS-232/422/485 isolated serial board (-40°C~+85°C), 2x DB9 Connector, Cervoz
MEC-CAN-2812i	M.2 2242/2260/2280 (B+M key) dual isolated CAN bus 2.0B board (-40°C~+85°C), 2x DB9 Connector, Cervoz
MEC-USB-2002C	M.2 2242/2260/2280 (B+M key) 2-port USB 3.2 board (0°C~+70°C), 2x USB Type C Connector, Cervoz
MEC-USB-2012C	M.2 2280 (B+M key) 2-port USB 3.2 board (0°C~+70°C), 2x USB Type C Connector, Cervoz
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug and Tubes, Level VI
GST360A24-CIN	Adapter AC/DC 24V 15A 360W with 3pin Terminal Block Plug and Tubes, Level VI
RSD-200D-24	Railway Single Output DC-DC Converter 200W / DC 24V
Power Cable	1M Power Cable with 3-Pin Terminal Block Plug, Stripped and Tinned End with Tube
PPM-I360-02-R10	360W Power Protection Module for DS Series

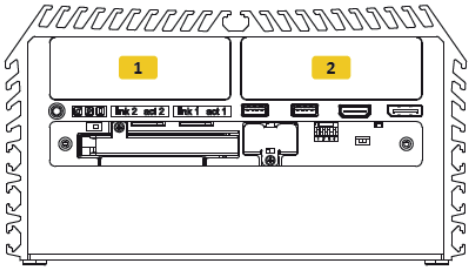
Optional Module Configuration – Front side



DS-1500



DS-1501



DS-1502

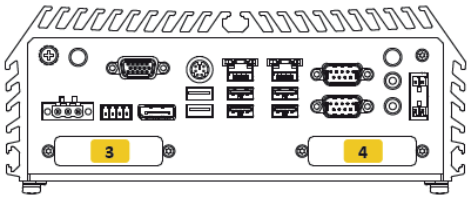
Model No.	Description	1	2
CMI-LAN01-R12/UB1012 	CMI Module with 4x Intel I210 GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout	V	V
CMI-M12LAN01-R12/UB1010 	CMI Module with M12 Connector, 4x Intel GbE LAN / 1x Universal Bracket with 4x M12 Cutout	V	V
CMI-XM12LAN01-R10/UB1030-R10 	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports / Universal Bracket with 4x M12 X-Coded Cutout	V	V
CMI-2P5GLAN03-R10/UB1012 	CMI Module with 4x Intel 2.5GbE LAN, RJ45 Port / 1x Universal Bracket with 4x RJ45 Cutout	V	-
CMI-10GLAN03-R10/UB1028 	CMI Module with 2x Intel X550 10GbE LAN, RJ45 Port / 1x Universal Bracket with 2x RJ45 Cutout	V	-
CMI-10GXM12LAN03-R10/UB1037-R10 	CMI Module with 2x Intel 10GbE LAN, M12 X-Coded Connector / Universal Bracket with 2x M12 X-coded Cutout	V	-
CMI-CAN01-R10/UB1038-R10 	CMI Module with 2x CAN FD Ports / Universal Bracket with 2x DB9 and 1x Switch Cutout for CMI-CAN Expansion	V	V
CMI-COM02/UB1004 	CMI Module with 4x RS232/422/485 Ports (Support 5V/12V) / 1x Universal Bracket with 4x DB9 Cutout	V	
CMI-ICOM01/UB1004 	CMI Module with 4 x isolated RS232/422/485/ 1x Universal Bracket with 4x DB9 Cutout	V	
CMI-DIO02/UB1018 	CMI Module with 16DIO (8in 8out) / 1x Universal Bracket with DIO Cutout	V	V
UB1032-R10 	Universal Bracket with 3x Antenna Cutout	V	V

Remark:

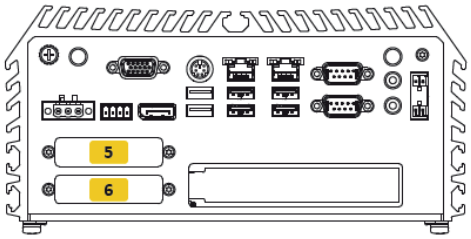
Maximum one CMI-COM02 or CMI-ICOM01 module can be installed in this system.

V : Compatible

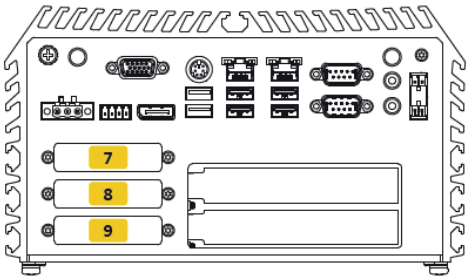
Optional Module Configuration – Rear side



DS-1500



DS-1501



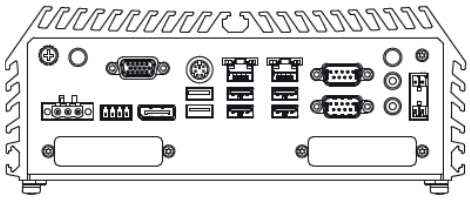
DS-1502

Model No.	Description	DS-1500		DS-1501		DS-1502		
		3	4	5	6	7	8	9
MEC-LAN-2002i(-S) / UB0311 	M.2 Module with 2x LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout	V	V	V	V	V	V	V
MEC-LAN-2602i / UB0311 	M.2 Module with 2x 2.5GbE LAN Ports, 2x 30cm cable / 1x Universal Bracket with 2x RJ45 Cutout	V	V	V	V	V	-	-
MEC-COM-2012i / 2x UB0303 	M.2 Module with 2x RS-232 Ports, 1x Standard DB9 Cable / 2x Universal Bracket each with 1x DB9 Cutout	V		V		-	V	
MEC-COM-2032i / 2x UB0303 	M.2 Module with 2x RS-232/422/485 Ports, 1x Standard DB9 Cable / 2x Universal Bracket each with 1x DB9 Cutout	V		V		-	V	
MEC-CAN-2812i / 2x UB0303 	M.2 Module with 2x isolated CAN bus 2.0B Ports, 2x Standard DB9 Cable / 2x Universal Bracket each with 1x DB9 Cutout	V		V		-	V	
MEC-USB-2002C / 2x UB0337-R10 	M.2 2242 Module with 2x USB 3.2 Type C Port / 2x Universal Bracket each with 1x USB Type C Cutout for MEC-USB (M.2 interface) Expansion	V		-	-	-	-	
MEC-USB-2012C / 2x UB0337-R10 	M.2 2280 Module with 2x USB 3.2 Type C Port / 2x Universal Bracket each with 1x USB Type C Cutout for MEC-USB (M.2 interface) Expansion	-	-	V		-	V	
UB0331-R10 	Universal Bracket with 2x Antenna Hole	V	V	V	V	V	V	V
FAN-UB100 	Internal Exhaust Fan with 4pin Connector	-	-	-	-	V		

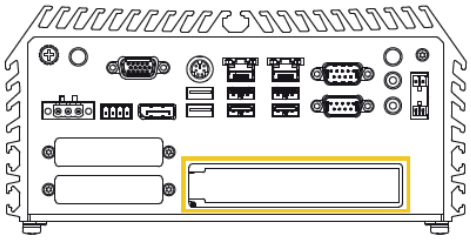
FAN-UB101 	Internal Intake Fan with 4pin Connector	-	-	-	-	V

V : Compatible

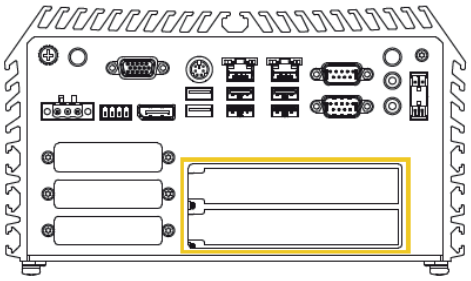
Riser Card Configuration



DS-1500



DS-1501

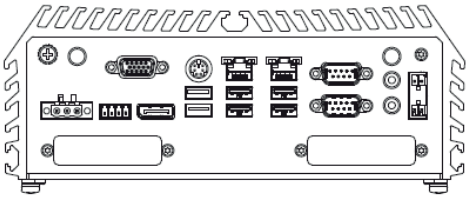


DS-1502

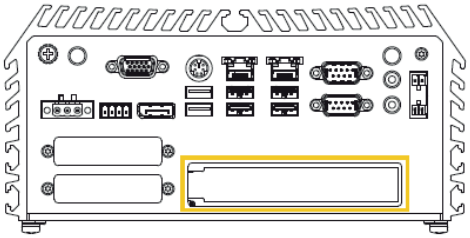
Model No.	Description	DS-1500	DS-1501	DS-1502
RC-E16-01 	Riser Card with 1 x PCIex16 Slot	-	V	-
RC-PI-01 	Riser Card with 1 x PCI Slot	-	V	-
RC-E8E8-R10 	Riser Card with 2 x PCIex8 Slots	-	-	V
RC-E16E1-01 	Riser Card with 1x PCIex16, 1x PCIex1 slots, supports GPU card up to 75W	-	-	V
RC-E16E1-02-R10 	Riser Card with 1x PCIex16, 1x PCIex1 slots, and auxiliary power connector, supports GPU card up to 130W	-	-	V
RC-E16PI-01 	Riser Card with 1x PCIex16 and 1x PCI Slots (PCIe x16 Slot Supports Single Deck Add-on Card)	-	-	V
RC-PIPI-01 	Riser Card with 2x PCI Slots	-	-	V

V : Compatible

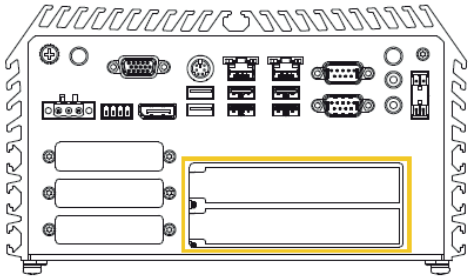
Compatible GPU List



DS-1500



DS-1501



DS-1502

Model	Architecture	Dimesion (L x H mm)	Slot	Power Consumption	DS-1500	DS-1501	DS-1502
RTX PRO 4000 SFF Blackwell	Blackwell	167.6 x 68.6	Dual Slot	70W	-	-	v
RTX PRO 2000 Blackwell	Blackwell	167.6 x 68.6	Dual Slot	70W	-	-	v
RTX A2000 | RTX A2000 12GB	Ampere	167.6 x 68.6	Dual Slot	70W	-	-	v
RTX A1000	Ampere	162.6 x 68.6	Single Slot	50W	-	v	v
RTX A400	Ampere	162.6 x 68.6	Single Slot	50W	-	v	v
T1000 | T1000 8GB	Turing	155.9 x 68.9	Single Slot	50W	-	v	v
T600	Turing	155.9 x 68.9	Single Slot	40W	-	v	v
T400 | T400 4GB	Turing	155.9 x 68.9	Single Slot	30W	-	v	v

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Bring us your challenge & experience the difference.

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