



W2U5.2 & W2U5.3

2U RUGGED WORKSTATIONS

DESIGNED FOR
MISSION-CRITICAL APPLICATIONS

DESIGNED IN-HOUSE IN FRANCE
ADAPTABLE TO ALL REQUIREMENTS
SUPERIOR QUALITY



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The W2U5 series is the compact, low noise workstation from APLUS Système Automation's rugged servers and workstations line.

High Environmental Performance and Low Noise

The W2U5 series stands out for its high number of processing cores, offering up to 24 cores in a very compact 2U rack size. This makes it ideal for industrial or embedded applications that need multiple monitors at a low cost, along with good computing power and a small chassis depth compared to standard racks. The W2U5 series is perfect for environments where space is limited but high performance is important.

Scalable and Versatile

The W2U5 series provides an ideal IT solution for harsh environments. It supports up to seven low-profile expansion cards or three full height, full length add-on cards, offering extensive expansion capabilities. The W2U5 series can be powered by either DC or AC power supply, with options for single or redundant power supplies to ensure compatibility with different environments.

Designed for mission-critical applications

Our Workstations are built to perform reliably in harsh environments. Marine-grade 316L stainless steel chassis offers durability and resilience. The ventilation system with silent block-mounted fans optimize airflow and reduce noise. Support brackets secure all expansion cards, ensuring stability against shocks and vibrations. Additionally, honeycomb openings help our systems meet the highest standards for electrical and electromagnetic protection, including military requirements.

Three ruggedness grades — industrial, rugged, and military — are available to ensure optimal performance in any challenging environment:



Industrial Grade

IW2U5.2 | IW2U5.3



Rugged Grade

RW2U5.2 | RW2U5.3



Military Grade

MW2U5.2 | MW2U5.3

Certified AddOn boards for Military grade systems:

- GPU nVidia Tesla L4
- Sunhillo PCE335: 4 high-speed serial lines supporting multiple protocols (X.25, HDLC, TA-LIB, LI6, etc.)
- Intel® Ethernet Adapters (E810)
- LSI MR-SAS9560: 12 Gbit/s throughput for enhanced system performance

2U rugged Workstation

Grade-specific technological enhancements

	Industrial	Rugged	Military
Hard Disk Drives (HDDs)	No	No	No
Solid State Drives (SSDs)	Yes	Yes	Yes
Secure bonding for all internal connectors	No	Yes	Yes
Screws with enhanced thread locking	No	Option	Yes
Tropicalized electronics	No	Option	Yes
Shock & vibration-resistant electronic cards	No	No	Yes
Electronic Core on stiffener	No	No	Yes

Environmental performances

	Industrial	Rugged	Military
Operating Temperature	0°C to +50°C (+32°F to 122°F)		-10°C to +50°C (+14°F to 122°F) MIL-STD-810G, Method 502.5, Procedure II, 4 hours MIL-STD-810G, Method 501.5, Procedure II, 12 hours
Storage Temperature	-20°C to +70°C (-4°F to +158°F)		-40°C to +75°C (-40°F to +167°F) MIL-STD-810G, Method 501.5, Procedure I, 4 hours
Operating Relative Humidity Range	5% to 90%, non condensing, at +35°C (+95°F)		95% RH at +40°C EN 60068-2-3, Test Cab: +40°C ±2°C (+104°F ±3.6°F), 95% RH, 10 days
Storage Relative Humidity Range	5% to 95%, non condensing, at +45°C (+113°F)		95% at +25°C to 55°C (+77°F to +131°F) EN 60068-2-30, Test Db, Variant 2: +25°C ±3°C to +55°C ±2°C (+71.6°F ±3.6°F to +127.4°F ±3.6°F), 95% ±4% RH, 6 cycles, 24 hours per cycle
Operational Atmospheric Pressure Range	650 hPa to 1100 hPa		550 hPa to 1100 hPa
Shock Resistance	15g for 11ms across 6 axes with SSD	20g for 11ms across 6 axes with SSD	20g for 18ms across 6 axes with SSD MIL-STD-810F, method 516.5, procedure I
Vibration Resistance	5 Hz to 100 Hz at 0.8g	5 Hz to 300 Hz at 0.8g	MIL-STD-167-1A No critical frequency under 100Hz Endurance @ 33Hz, 1g, 2 hours
Random Vibrations	5 Hz to 500 Hz at 0.8g	5 Hz to 500 Hz at 1g	MIL-STD-810F method 514-5, procedure I 5 Hz to 2000 Hz at 18 m/s ² , 8 hours per axis, 2.5 (m/s ²) ² /Hz max PSD
Acceleration Tolerance: Emergency Landing	5g		8g
Acceleration Tolerance: Transportation	3g		4.5g
EMC	CE Mark Class B (EN 61000-6-2, EN55022, EN 55024)		
Electrical Safety Standards	EN 62368-1		
Surge immunity	EN 61000-4-5, STANAG 1008		
Susceptibility to Radiated Interferences	-	-	NRS01, NRS02, NRS04 tests of AECTP-500
Radiated Electromagnetic Emissions	-	-	NRE01, NRE02 tests of AECTP-500
Susceptibility to Conducted Interferences	-	-	NCS01, NCS07, NCS08, NCS09, NCS11, NCS12, NCS13 tests of AECTP-500
Conducted Electromagnetic Emissions	-	-	NCE01, NCE02, NCE04, NCE05 tests of AECTP-500
External Enclosure Grounding	10 mΩ @ 1A	5 mΩ @ 5A	5 mΩ @ 10A
Internal Enclosure Grounding	-	-	10 mΩ @ 10A
Noise Level at Full Speed	50 dB(A)		

Technical specifications

	W2U5.2	W2U5.3	
Processor System			
Processor	Intel® Xeon®, Core™ i3, Pentium® or Celeron® processor supporting up to 8 cores	Intel® Core™ i3/i5/i7/i9, Pentium® or Celeron® processors, 12th & 13th generation, supporting up to 24 cores	
Supported processors (partial list)	Intel® Xeon® E-2278GE (8 cores, 16 threads, 4.7 GHz) Intel® Xeon® E-2226GE (6 cores, 6 threads, 4.6 GHz) Intel® Core™ i3-9100E (4 cores, 4 threads, 3.7 GHz) Intel® Pentium® G5400 (2 cores, 4 threads, 3.7 GHz) Intel® Celeron® G4900 (2 cores, 2 threads, 3.1 GHz)	Intel® Core™ i9-13900TE (24 cores, 32 threads, 5.0 GHz) Intel® Core™ i7-13700TE (16 cores, 24 threads, 4.8 GHz) Intel® Core™ i5-13500TE (14 cores, 20 threads, 4.5 GHz) Intel® Core™ i3-13100TE (4 cores, 8 threads, 4.1 GHz) Intel® Pentium® Gold G7400TE (2 cores, 4 threads, 3.0 GHz) Intel® Celeron® G6900TE (2 cores, 2 threads, 2.4 GHz)	
Memory	4x DDR4 UDIMM ECC up to 2666 MHz, up to 64 GB	4x DDR5 UDIMM ECC up to 4400 MHz, up to 128 GB	
Chipset	Intel® C246	Intel® R680E	
Expansion Slot		W2U5.31	W2U5.32
PCI/PCIe	1x PCIe 3.0 x16 2x PCIe 3.0 x8	1x PCIe 5.0 x16 2x PCIe 4.0 x4	2x PCIe 4.0 x16 3x PCIe 4.0 x4 1x PCIe 3.0 x4 (co-lay M.2 M key) 1x PCI
PCI/PCIe with Riser Card	3x PCIe/PCI 32bits	3x PCIe/PCI 32bits	
M.2	No	1x M.2 M key (PCIe 4.0 x4)	1x M.2 E key 1x M.2 A key (supports M2-OOB) 1x M.2 M key (PCIe x4 NVMe, SATA) 1x M.2 M key (co-lay PCIe 3.0 x4)
Management		W2U5.31	W2U5.32
BMC	AST2500 with dedicated LAN	AST2600 with dedicated LAN	No
Data Storage			
Storage Drive	3x 3.5" bays for up to 9x 2.5" SATA/SAS SSD or 6x NVMe SSD		
General I/O		W2U5.31	W2U5.32
Ethernet	4x 1Gb Ethernet	2x 2.5Gb Ethernet	4x 2.5Gb Ethernet
Front I/O	2x USB 3 4x status LED (Power, Disk, Ethernet, Redundant PSU Fault) 3x switches (Power On/Off, Reset, Redundant PSU Alarm Reset)		
Rear I/O	4x USB 3.1	4x USB 3.2	8x USB 3.2
Display	1x VGA 2x DisplayPort	1x VGA 1x DVI-D 1x HDMI 2x DisplayPort	1x VGA 1x HDMI 2x DisplayPort
Security & Hardware Control			
Monitoring	Optional Power Supply monitoring through PM Bus		
TPM	TPM 1.2 & 2.0 (optional)	TPM 2.0	
Security	Top cover intrusion detection switch Watchdog / NMI		
Power	with optional PM Bus monitoring		
Single AC	350W / 550W, 90V-264V AC High Efficiency*		
Redundant AC	2x 350W, 90V-264V AC High Efficiency 2x 500W, 90V-264V AC High Efficiency*		
Single DC	460W, 18V-36V DC High Efficiency 460W / 500W / 550W, 36V-72V DC High Efficiency		
Mechanical			
Material	Marine grade 316L stainless steel		
Size	Rackable 2U, 400mm (15.74") depth (EN 60297-3-100 compliant)		
Weight	Industrial & Rugged grade: 12 kg (26.45 lb) / Military grade: 13.6 kg (29.98 lb)		
Software			
OS Support	Microsoft Windows 7 SP1 Microsoft Windows 8.1 Microsoft Windows 10 (32/64 bits) Microsoft Windows Server 2008 R2 SP1 Windows 2012 R2 Linux Red Hat (32/64 bits)	Microsoft Windows 10/11 IoT Enterprise (64 bits) Microsoft Windows Server 2022 Linux Red Hat (64 bits) Linux Ubuntu 20/21 (64 bits)	