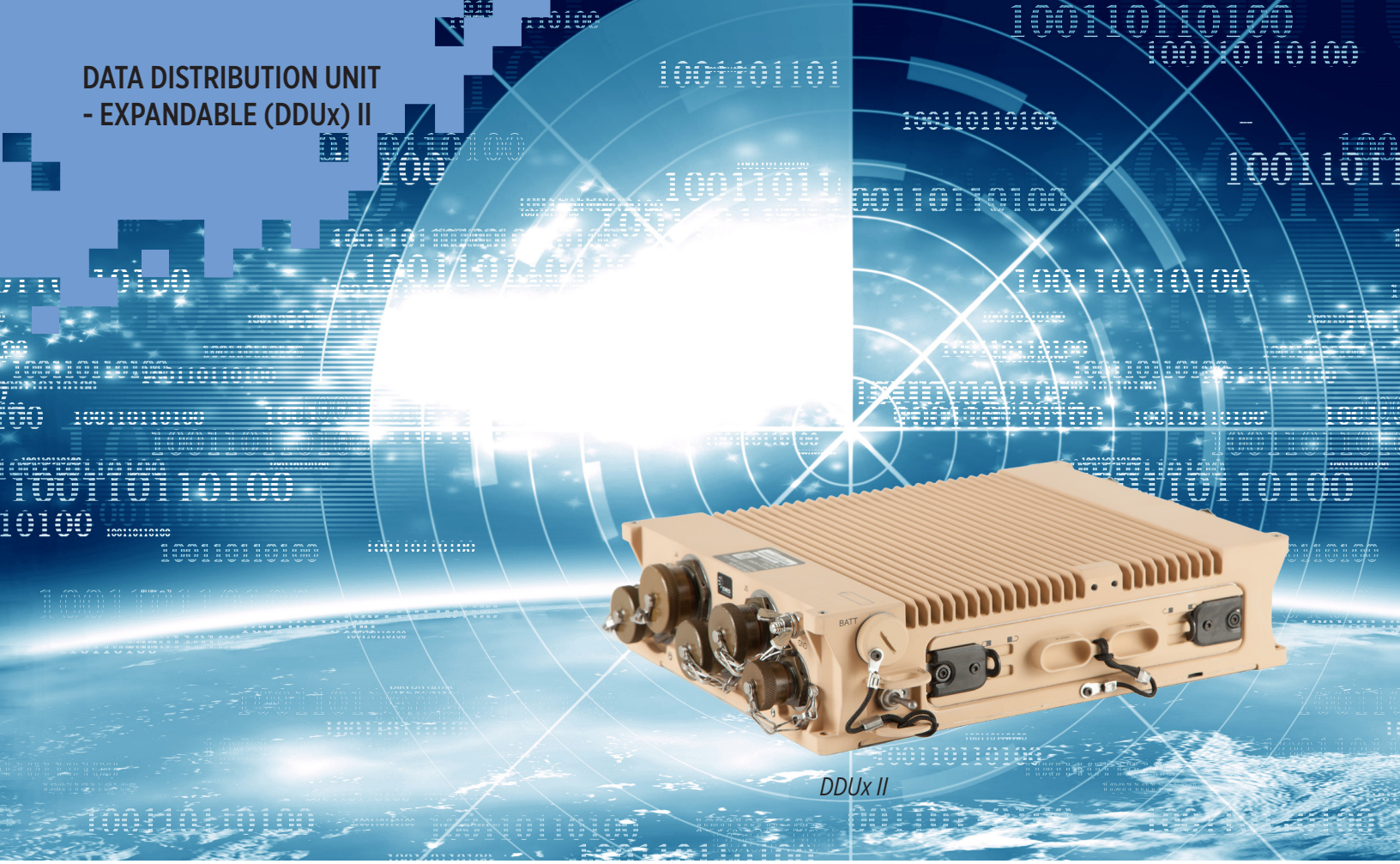
DATA DISTRIBUTION UNIT
- EXPANDABLE (DDUx) II



DDUx II

HIGHLY INTEGRATED AND EXTREMELY RUGGED COMPUTING SERVER

The DDUx II is the server member of an interoperable family of rugged computing solutions. It can be used standalone, with a 12.1", 15", or 17" display attached, or in conjunction with the 10.4" rugged Tablet.

The DDUx II is a **highly integrated** and extremely rugged computing Server incorporating Intel® Xeon® Quad Core processor technology, removable 2.5" solid state drives, and an extensive array of external interfaces.

The DDUx II is optimized for computing power, interfacing sensors & networks, and has the flexibility to deliver multiple concurrent capabilities in a compact form factor. Operation in the toughest Military, Department of Homeland Security (DHS), and industrial environments has been validated through an intensive qualification program and fielded operations.

The DDUx II is ideally suited to meet computing, networking/routing, sensor integration, and video processing needs in mobile and harsh environments where reliability is critical. The architecture simultaneously supports hosting of applications, management of network infrastructures, collection and streaming of sensor data. The DDUx II can operate multiple operating systems and virtual machines concurrently to support diverse application and data distribution requirements.

A Capability Upgrade Bay (CUB) allows the DDUx II to be customized to support customer specific I/O demands for any application. Several standard CUB card options are available for additional Ethernet ports, 802.11 wireless and LTE Cellular.

The DDUx II incorporates a Trusted Platform Module 2.0 (TPM) as part of a comprehensive Embedded Security architecture based on advanced Trusted Computing technologies. The Hardware Root of Trust built by the DDUx II Embedded Hardware Security subsystem provides a unique and advanced foundation for Cybersecurity threat protection.

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DDUx II CAPABILITIES

APPLICATION HOSTING
Intel® Xeon® Quad Core processor allows the DDUx II to run multiple concurrent native and virtual applications.

POSITION / TIME DISTRIBUTION
Commercial and Military embedded GPS card options enable internal use and external redistribution of Position, Time, TOD, and 1PPS information.

ROUTING / FIREWALL
All of the DDUx II Ethernet ports can be managed by onboard open-source or Cisco® based network products to manage tactical or remote network infrastructures.

RADIO INTERFACE & CONTROL
Four Radio interface ports can be used to exchange data over VOIP / Data networks. Additional control interfaces allow remote control of data radios (ex. channel select, preset select).

RADIO CROSS-BANDING
Routing software tools enable Radio Cross-Banding or the exchange of voice/data between divergent radios, radio frequencies, and IP phones.

VIDEO ACQUISITION / ENCODING / STREAMING / DVR
Video management software tools enable full management of the four RS-170 video inputs including capture, encoding, storing and sharing of this data over the network.

EMBEDDED HARDWARE SECURITY
The DDUx II employs multiple embedded security options that provide substantial protection against modern hardware focused cybersecurity threats. Technologies such as a Secure BIOS architecture, per-computer unique BIOS password assignment, digitally signed BIOS updates, factory provisioned TPM, Measured Launch environment, and secure storage of customer pre-placed keys are just a few of the unique security options. Security Deployment tools enable fleet implementation of Secure Boot and Self-Encrypting Drive technologies to protect data integrity and prevent unauthorized boot media.

FOR MISSION-CRITICAL APPLICATIONS IN THE MOST DEMANDING ENVIRONMENTS

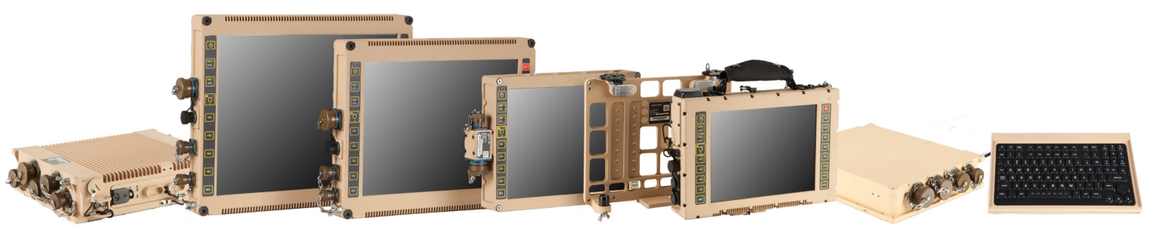
INDUSTRIAL

BORDER PATROL

MILITARY

SCALABLE FAMILY OF HARDWARE

The DDUx II is the Server member of a scalable family of rugged computing solutions. It can be used in a standalone configuration or it can optionally be integrated with 12.1″, 15″, or 17″ Multi-function Rugged Display II (MRD II) family members. If an additional workstation is required, the DDUx II can also host attachment of the MRT104 II Tablet. All components are designed for interoperability, allowing multiple flexible configurations to solve simple, complex, and evolutionary requirements.



DDUx II | *MRD 170 II 17″ Rugged Display* | *MRD 150 II 15″ Rugged Display* | *MRD 121 II 12.1″ Rugged Display* | *Tablet Mount* | *MRT 104 II 10.4″ Rugged Tablet PC* | *I/O Expansion Dock* | *Keyboard Unit (KU)*

DDUx II

COMPUTING CAPABILITY

COMPONENT	DESCRIPTION
Processor	Intel® Xeon Quad Core @ 2.0 GHz (2.8 GHz Turbo)
Memory	32 GB Main DDR4 RAM, 8 MB SmartCache
Storage	Two (2) removable Solid State SATA Drives (480 GB standard)
Hardware Security	TPM 2.0

SUPPORTED INTERFACES

Embedded GPS Options	Commercial GPS, SAASM GPS, MGUE
Ethernet	Four (4) Gigabit Interfaces, Four (4) 10/100 Interfaces
Radio Interfaces	Four (4) Military / Commercial Radio Ports each providing: RS-232 Remote Control / Date Interface, USB 2.0 Remote Control / Data Interface, GPS Signal Distribution, 1PPS, TOD from external or embedded GPS source, Audio In/Out, PTT Out
Video Interfaces	Four (4) Input RS-170 Ports, Low Latency; Simultaneous 4-Channel Video over IP Encoding and Distribution with Quad-Screen; One Output, Selectable RS-170
Monitor Outputs	One (1) LVDS Output; One (1) Display Port 1.2 Output
Serial Interfaces	Eight (8) USB 2.0, One (1) USB 3.0/eSATAp, Six (6) RS-232, Five (5) RS-422
Expansion	Capability Upgrade Bay – Supporting modular add-on options cards for additional I/O and functionality such as 802.11 wireless, additional Ethernet ports, additional Serial ports, etc.

PHYSICAL FEATURES

CHARACTERISTIC	MEASUREMENT
Weight	9.9 lbs max
Dimensions	13.2" x 9.9" x 2.8"
Input Power	20V to 33VDC Compliant with MIL-STD-1275 (Reverse polarity protection, Operate through: 6V IES, 16V Cranking, 250V spike, etc.)
Power Consumption	40W (typical) (with MRD 121)

ENVIRONMENTAL

CHARACTERISTIC	MEASUREMENT
Temperature	Operating: -46°C to +71°C; Storage: -51°C to +71°C
Altitude	Compliant with MIL-STD-810G, 500.5, Proc I, II, & III (15K ft – operational, 50K ft – storage, 8K to 40K ft - rapid decompression)
Sand and Dust	Compliant with MIL-STD-810G, 510.5, Proc I, II (blowing sand at 40-65 MPH for 6 hrs at ambient + 6 hrs at max operate, blowing dust at 17-23 MPH for 1.5 hrs)
Water Tightness	Compliant with MIL-STD-810G, 506.5, Proc I, and 512.5, Proc 1 (No water penetration during: driving rain: 4 in/hr at 40 MPH for 30 min, 30 PSIG water from 5 ft.)
Driving Rain	Compliant with MIL-STD-810G, 506.5 Proc I (4"/hr @ 40 MPH)
Water Jet	25 PSIG from 5 ft
Immersion	Compliant (1") with MIL-STD-810G, 125.5 Proc II
Humidity	Compliant with MIL-STD-810G, 507.5, Proc II
Fungus	Compliant with MIL-STD-810G, 508.6 (materials resist to fungal growth)
Explosive atmosphere	Compliant with MIL-STD-810G, 511.5, Proc I (will not cause ignition of explosive gaseous mixture while operating)
Salt Fog	Compliant with MIL-STD-810G, 509.5, Proc I (resistance to salt-fog atmosphere for 48 hrs)
Solar Radiation	Compliant with MIL-STD-810G, 505.5, Proc I, hot-dry climate (operate through three 24 hr exposure cycles)
Vibration	Compliant with MIL-STD-810G, 514.6, Custom procedure (Operate through: 15 min/phase/axis of Ground Mobile Wheeled Vibration Profile, M113 Crew Compartment Wall Profile, and 150 min/phase/axis Bradley Sponson Vibration Profile)
Shock	Compliant with MIL-STD-810G, 516.6, Proc I, while hard mounted (Operate through: 40g at 6ms, 50g at 10ms, 200g at 1ms, 575g at 0.5ms)
Drop	Compliant with MIL-STD-810G, 516.6, Proc VI (bench handling)
EMI/EMC	Compliant with MIL-STD-461F, CE-102, CS-101, CS-114, CS-116, RE-102 and RS-103 (fully configured system, fully cabled)
ESD	IEC 61000-4-2 Levels 1 & 4 (2KV to I/O pins, 8KV to chassis, 15KV to non-conductive surfaces)
Reliability	Demonstrated MTBF Reliability of 1572 hrs IAW MIL-HDBK-781A, minimum of 10 system for 30 days (exposure: +49 to -32°C, 24 – 30 VDC)
High Altitude Electromagnetic Pulse	Compliant with MIL-STD-461F RS105 and CS116
Near Lightning Strike	Compliant with MIL-STD-464

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