



COMPUTING TABLET

MRT104

Multi-Function Rugged Tablet

Highly Integrated & Extremely Rugged Computing Tablet

The MRT104 Computing Tablet incorporates Intel's Core i7 processor technology, as well as removable 2.5" solid state hard drives and an extensive array of external interfaces.

The MRT104 utilizes an ultra-rugged 10.4" XGA LCD that is directly bonded to a resistive touch screen that meets the harsh vibration and shock vehicle environments. The advanced adjustable display system provides the user with the flexibility to operate the MRT104 in both direct sunlight and extremely low-light level applications.

As an All-In-One work station the MRT104 is ideally suited for both fixed and mobile applications. On-the-go capability is provided by quick disconnect connectors and mounting latches coupled with two Lithium-ion batteries that incorporate technology for extreme temperature operation.

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 MRT104 is ideally suited to meet computing, sensor integration, and video processing needs in mobile and harsh environments where reliability is critical. The architecture supports hosting of applications as well as collection and streaming of sensor data all at the same time. If necessary the MRT104 can operate multiple Operating Systems and Virtual Machines concurrently to support diverse applications.

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The Capability Upgrade Bay (CUB) allows the MRT104 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, etc.

MRT104 incorporates a Trusted Platform Module (TPM) as part of a comprehensive Embedded Security architecture based on advanced Trusted Computing technologies. The Hardware Root of Trust built by the MRT104 Embedded Hardware Security subsystem provides a unique and advanced foundation for Cybersecurity threat protection.

MRT104 provides industry-leading Embedded Security architecture based on advanced Trusted Computing technologies.

FOR MISSION-CRITICAL APPLICATIONS IN THE MOST DEMANDING ENVIRONMENTS



Industrial



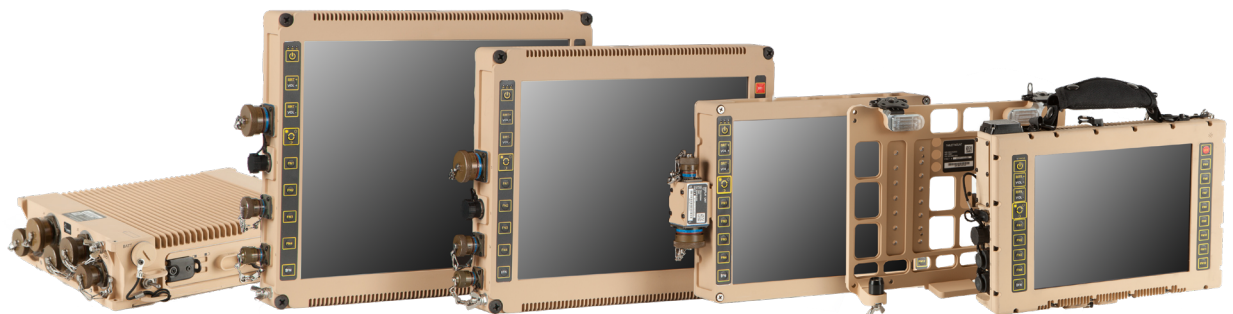
Border Patrol



Military

SCALABLE FAMILY OF HARDWARE

The MRT104 is the Tablet member of a scalable family of rugged computing solutions. It can be used in standalone configuration or it can optionally be integrated with the I/O Expansion Dock, DDUx, or the 15"/17" Multi-Function Rugged Display family members. All components are designed for interoperability, allowing multiple flexible configurations to solve simple, complex, and evolutionary requirements.



DDUx II

MRD170
17" Rugged Display

MRD150
15" Rugged Display

MRD121
12.1" Rugged Display

MRT104
10.4" Rugged Tablet

MRT104 CAPABILITIES

APPLICATION HOSTING

Dual core i7 processor allows the MRT104 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.

PORTABILITY

Quick disconnect features, internal batteries, low power draw, and small space claim are key features for maneuverability while in a mounted or dismounted configuration. The MRT104's capabilities are increased when utilized with the I/O Expansion Dock or DDUx.

RUGGEDNESS

With a strong aluminum housing, industrial grade connectors, high performance batteries, and robust display the MRT104 can handle the harshest of environmental conditions.

VIDEO ACQUISITION / ENCODING / STREAMING / DVR

Video management software tools enable full management of the two RS-170 video inputs and sharing of this data over the network.

EMBEDDED HARDWARE SECURITY

The MRT104 employs multiple embedded security elements 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.



MRT104 with Vehicle Mount and I/O Expansion Dock

SPECIFICATIONS

COMPUTING CAPABILITY

COMPONENT	DESCRIPTION
Processor	Intel Dual Core i7 @ 1.7 GHz (2.8 GHz Turbo)
Memory	8 GB Main DDR3 RAM (Expandable to 16 GB), 4 MB Smart Cache
Storage	Two (2) removable Solid State SATA Drives (480 GB standard)

SUPPORTED INTERFACES

INTERFACE	DESCRIPTION
Embedded GPS Options	Commercial or Military GPS
Ethernet Interfaces	Two (2) 10/100 and One (1) Gigabit at Tablet; Three (3) 10/100 and One (1) Gigabit at Dock
Video Interfaces	Two (2) Input RS-170 Ports, Low Latency; Simultaneous 2-Channel Video over IP Encoding and Distribution with Dual-Screen
Monitor Outputs	One (1) DisplayPort 1.1a Output
Internal Display	10.4" XGA LCD
Serial Interfaces	Four (4) USB 2.0, One (1) USB 3.0, One (1) RS-422, and One (1) RS-232 at Tablet; One (1) USB 2.0, One (1) RS-232, Four (4) RS-422 and One (1) CAN at Dock
Expansion	Capability Upgrade Bay – Supporting modular add-on options cards for additional I/O and functionality such as 802.11 wireless, addition Ethernet ports, additional Serial ports, etc.
RFID	Embedded RFID Reader Option in Dock
Touch Screen	Pressure-activated resistive touchscreen
Display Backlight	Adjustable backlight, 800 cd/m ² high bright to 0.1 cd/m ² for Night Vision Goggle (NVG) compatible operations
Audio	Integrated Speaker

PHYSICAL FEATURES

CHARACTERISTIC	MEASUREMENT
Weight	Tablet Weight: 9 lbs with one hard drive installed, Dock Weight: 6 lbs, Tablet Mount Weight: 2.3 lbs
Dimensions	Tablet Dimensions: 13.0" x 9.3" x 2.4", Dock Dimensions: 12.6" x 9.8" x 2.1", Tablet Mount Dimensions: 11.6" x 10.6" x 2.1"
Input Power	20-33V, Compliant with MIL-STD-1275 (Reverse polarity protection, Operate through: 6V IES, 16V Cranking, 250V spike, etc.)
Power Consumption	60W (typical)

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ENVIRONMENTAL

COMPONENT	DESCRIPTION
Temperature	Operating, -46°C to +71°C; Storage, -51°C to +71°C
Altitude	MIL-STD-810G, 500.5, Proc I, II, & III (15K ft –operational, 50K ft, storage, 8K to 40K ft - rapid decompression)
Sand and Dust	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	MIL-STD-810G, 506.5, Proc I (No water penetration during: driving rain: 4 in/hr at 40 MPH for 30 min, 50 PSIG water jet from 8-10 in, 105 PSIG steam jet)
Humidity	MIL-STD-810G, 507.5, Proc I, Cyc B3 (Operate through 3%-100% RH at 35-71 °C for 15 days)
Fungus	MIL-STD-810G, 508.6 (materials resistant to fungal growth)
Explosive Atmosphere	MIL-STD-810G, 511.5, Proc I (will not cause ignition of explosive gaseous mixture while operating)
Salt and Fog	MIL-STD-810G, 509.5, Proc I (resistance to salt fog atmosphere for 48 hrs)
Solar Radiation	MIL-STD-810G, 505.5, Proc I, hot-dry climate (operate through three 24 hr exposure cycles)
Vibration	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	MIL-STD-810G, 516.6, Proc I & IV, while hard mounted (Operate through: 30g at 11ms, 40g at 6ms, 50g at 10ms, 100g at 1.5ms; Operate following: 575g at 0.5ms)
Drop	MIL-STD-810G, 516.6 Proc IV (Survive 26 drops from 48 inches)
EMI/EMC	MIL-STD-461F, CE-102, CS-101, CS-114, CS-115, RE-102, and RS-103 (fully-configured system, fully cabled)
ESD	IEC 61000-4-2 Levels 1 & 4 (6 pulses of 2KV to I/O pins, 8KV to chassis, 15KV to non-conductive surfaces)
Reliability	Demonstrated MTBF Reliability of 1,572 hrs IAW MIL-HDBK-781A, minimum of 10 system for 30 days (exposure: +49 to -32°C, 24 –30 VDC)