

## GVA MULTI-FUNCTION RUGGED TABLET (GVA MRT104)

GVA MRT104

I/O Expansion Dock



## HIGHLY INTEGRATED & EXTREMELY RUGGED COMPUTING TABLET

The Generic Vehicle Architecture Multi-function Rugged Tablet (GVA MRT104) incorporates Intel's Core i7 processor technology, as well as removable 2.5" solid state hard drives and an extensive array of external interfaces. By being compliant to Def Stan 23-09 Generic Vehicle Architecture the GVA MRT104 provides a standardized open architecture that is easy to integrate into vehicle systems and provides high levels of training commonality.

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

As an All-In-One work station the GVA MRT104 is ideally suited for both fixed and mobile applications. Quick disconnect connectors and mounting latches coupled with two Lithium-ion batteries that incorporate technology for extreme temperature operation provides the user on-the-go capability. 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 GVA 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 GVA MRT104 can operate multiple Operating Systems and Virtual Machines concurrently to support diverse applications.

Capability Upgrade Bay (CUB) allows the GVA 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.\*

GVA 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 GVA MRT104 Embedded Hardware Security subsystem provides a unique and advanced foundation for Cybersecurity threat protection.

\*Custom configuration and capabilities available



# GENERIC VEHICLE ARCHITECTURE MULTI-FUNCTION RUGGED TABLET (GVA MRT104)

## GVA MRT104 CAPABILITIES

**APPLICATION HOSTING**  
Dual core i7 processor allows the GVA 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 GVA 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 GVA 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 including capture, encoding, storing and sharing of this data over the network.

**EMBEDDED HARDWARE SECURITY**  
The GVA MRT104 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.



GVA MRT104 with Vehicle Mount and I/O Expansion Dock

## FOR MISSION-CRITICAL APPLICATIONS IN THE MOST DEMANDING ENVIRONMENTS



INDUSTRIAL



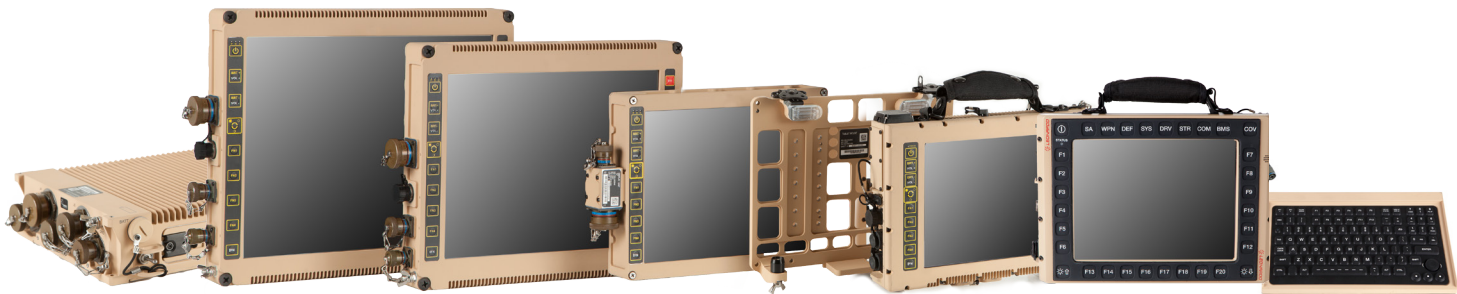
BORDER PATROL



MILITARY

## SCALABLE FAMILY OF HARDWARE

The GVA 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      MRD170 17" Rugged Display      MRD150 15" Rugged Display      MRD121 12.1" Rugged Display      MRT104 10.4" Rugged Tablet      GVA MRT104 10.4" Rugged Tablet      Keyboard Unit (KU)

# GENERIC VEHICLE ARCHITECTURE MULTI-FUNCTION RUGGED TABLET (GVA MRT104)

## 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 GPS, SAASM GPS   |
| Ethernet Interfaces  | Two (2) 10/100 at Tablet; One (1) Gigabit and Three (3) 10/100 at Dock  |
| Video Interfaces     | Two (2) Input RS-170 Ports, Low Latency; Simultaneous 2-Channel Video over IP Encoding and Distribution with Dual-Screen; Video over Ethernet compliant to Def Stan 00-82             |
| Monitor Outputs      | One (1) Display Port Output   |
| Internal Display     | 10.4" XGA LCD   |
| Serial Interfaces    | Six (6) USB 2.0, One (1) USB 3.0/eSATAp, One (1) USB 2.0/eSATAp, Two (2) RS-422, and One (1) RS-232 at Tablet; One (1) USB 2.0, One (1) RS-232, and Four (4) RS-422 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 multi-touch, touchscreen   |
| Display Backlight    | Adjustable backlight, 800 cd/m <sup>2</sup> high bright to .1 cd/m <sup>2</sup> 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: 13.3" x 9.3" x 2.4", Dock Dimensions: 13.5" x 9.8" x 2.1", Tablet Mount Dimensions: 11.6" x 10.6" x 2.1" |

|                   |   |
|-------------------|---|
| Input Power       | 20-33V, Compliant with Def-Stan61-5 and MIL-STD-1275 (Reverse polarity protection, Operate through: 6V IES, 16V Cranking, 250V spike, etc.) |
| Power Consumption | 45W (typical)   |

### ENVIRONMENTAL

| COMPONENT            | DESCRIPTION  |
|----------------------|--|
| 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, & III (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, 50 PSIG water jet from 8-10 in, 105 PSIG steam jet)  |
| Humidity             | Compliant with MIL-STD-810G, 507.5, Proc I, Cyc B3 (Operate through 3% - 100% RH at 35-71 °C for 15 days)  |
| 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, 100g at 1.5ms, 575g at 0.5ms)  |
| Drop                 | Compliant with MIL-STD-810G, 516.6 Proc IV (Tablet, Keyboard, Hard drive operate after 26 drops from 48 inches onto plywood)   |
| EMI/EMC              | Compliant with MIL-STD-461G, CE-102, CS-101, CS-114, CS-115, CS-116, RE-102, RS-103, and RS-105 (fully configured system, fully cabled)  |
| ESD                  | Compliant with 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 3,745 hrs IAW MIL-HDBK-781A, minimum of 10 system for 30 days (exposure: +49 to -32°C, 24 - 30 VDC)   |

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