TUFF+ PANEL PC

10.2” & 12.8” Tablet PC

Aluminium Enclosures | Capacitive Touch | Upgradability | Customisable | Vibration & Shock | IP67 | Transient Protection | Sunlight Readable | -40º ~ +75º C

Motium’s fixed mount TUFF+ Panel PC is an evolution of our existing TUFF platform. We’ve added support for new processors, Full HD screens with capacitive touch, and increased the number of wired expansion interfaces and connector options.

At Motium, customisation is standard, so the TUFF+ Panel PC can be customised to fit your rugged technology requirements.

Key Features

Unlimited Configurations
Along with standard card form factors, we offer proprietary expansion board options for unlimited future-proof upgradability.

Fully Customisable Connectors
Choose from standard QuickConnect Interface connectors, customise your pin-out to consolidate wired interfaces, or change the interface connectors to your own standard.

High-Definition Touch Display
HD sunlight readable display upgraded to industrial capacitive touch. Polarised sunglasses compatible for ease of use in your environment.

Polarised Lens Compatible

Quad-Core Processing Power
Supporting the latest Intel Elkhart Lake processors, with up to 16GB RAM and an added AI processor.

Multiple Wireless Options
Including Bluetooth, WiFi, 4G/LTE, 5G, GNSS, UHF. We also offer custom wireless modules.

Multiple Operating Systems
Support for Windows 10 and 11, Linux, and Android.

Key Markets

Mining | Waste Management | Emergency Services | Transportation | Industrial Automation | Defence | Marine | Construction

Customised Solutions
Designing and manufacturing our own technology means we can tailor our products to your specific needs. From white label customisation through to custom hardware and beyond, contact us for a truly bespoke TUFF solution.

Ongoing Support
We create strong, long-lasting partnerships with our customers. We offer comprehensive and ongoing support and guidance for effective installation and efficient use of all products.

Contact Us
For product enquiries or further information about the entire TUFF product range, contact us at **sales@motium.com**.

MOTIUM

YOUR RUGGED TECHONOLOGY PARTNER

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TUFF+ Panel PC

10.2” (MPP-1027) & 12.8” Tablet PC (MPP-1227)

MOTIUM

SPECIFICATIONS

DISPLAY	
Viewable Area	10.2-inch: (32.5cm) diagonal, 16:9 aspect ratio, 225.8mm (W) x 127.0mm (H) 12.8-inch: (32.5cm) diagonal, 16:9 aspect ratio, 283.4mm (W) 159.4mm (H)
Native Resolution	10.2-inch: 1920 x 1080; dot pitch: 0.1176 mm x 0.1176 mm 12.8-inch: 1920 x 1080; dot pitch: 0.1476mm x 0.1476mm
Contrast Ratio	10.2-inch: 1000:1 typ 12.8-inch: 1500:1 typ
Colours	24-bit 16.7 million colours
Response Time	Ton: 25ms typ. Toff: 11ms typ
Brightness	10.2 inch: 1300 nits typical. 12.8 inch: 700 nits typical. Configurable through Motium Panel PC Utility.
Viewing Angle	Horizontal: 170° typ and 160° minimum. Vertical: 170° typ and 160° minimum.
Touch	10-point projected capacitive on 1.8mm glass, optically bonded with anti-glare, anti-reflection and anti-fingerprint surface coatings.
PC	
Processor	Intel® Atom x6425E Quad Core 2.0GHz/3.0GHz Intel® Atom X7-E3950 Quad Core 1.6Ghz/2.00Ghz Intel® Atom X7-E3940 Quad Core 1.60GHz/1.80GHz
Instruction Set	64-bit.
Memory	16GB LPDDR4x SDRAM with x6425E CPU 8GB DDR3L RAM with E3950 CPU 4GB DDR3L RAM with E3940 CPU
System Chipset	Intel® Apollo Lake E3900 Series with TPM 2.0. Intel® Elharkt Lake x6000 Series with TPM 2.0.
BIOS	AMI Aptio UEFI. Multi Stage Watchdog.
Operating System	Windows 11 IoT Enterprise, Windows 10 IoT Enterprise. Linux and Android Available.
MASS STORAGE AND MEDIA	
SSD 1	32GB to 4TB.
SSD 2	Optional 32BG to 4TB.
Boot Source	Internal SSD. Internal MicroSD. External USB flash drive. External USB SSD, LAN.
VIDEO AND AUDIO	
Video	Intel® Atom x6000 Series: Intel UHD Graphics Gen. 11 Intel® Atom E3900 Series: Intel HD Graphics Gen. 9 3D hardware acceleration support: DirectX 12.0, OpenGL 4.3, OpenCL 2.0, Vulkan1.0 High-performance decoding support: MPEG-2, H.264 (L5.2), VC-1, WMV9, VP8, JPEG/MJPEG, H.265 (HEVC), VP9, MVC.
Sound	Dual high-output integrated stereo speakers with software gain control.
WIRELESS CONNECTIVITY	
GNSS	Optional 92-channel u-blox M9 engine GPS L1 C/A, QZSS L1 C/A/S, GLONASS L10F BeiDou B1I, Galileo E1B/C SBAS L1 C/A: WAAS, EGNOS, MSAS, GAGAN. External connector with Active Antenna support for enhanced GPS reception.
Bluetooth	Optional Class 2 Bluetooth V4.0 with BLE available on a Wi-Fi combo card with external antenna support.Optional Class 1 Bluetooth V5.0 with BLE with optional antenna support.
Cellular	Optional 4G/LTE/5G Cellular Data Module with Nano SIM and external dual antenna support for MIMO.
Wireless LAN	Optional single or dual IEE 802.11 AC/a/b/g/n Module with external dual antenna support for MIMO.
UHF	Optional dual band and multimode transceiver on 902-928 MHz (2-GFSK) and 410-475 MHz (4-GFSK) bands with external antenna support
AI	Optional Neural Accelerator with 4Gb LPDDR4 supporting Caffe and TensorFlow frameworks
Other	Other Full Length Mini PCIe or M.2 compliant cards can be fitted at time of manufacture. Custom modules can be fitted at time of manufacture.
INTERFACES	
COM	Three RS-232 ports and one RS-485 port available on IO2.
USB	Two full-function USB 3.0 host ports available on the edge connector. One full-function USB 3.0 or USB 2.0 port available on IO5.
LAN	Up to two 10/100/1000 LAN ports available on IO4 and IO5.
I/O	Four independent configurable analogue or digital inputs/outputs available on IO1.
CAN	Two CAN buses supporting, CANbus 2.0B, CANFD, CANopen and J1939 protocols available on IO3. Controllable power output also available.
Composite Video Input	Up to eight HD Composite Video Capture with PAL/NTSC support.
Function Keys	Power on/off, backlight brightness up/down, volume up/down. Custom Function key. Backlight, Volume and Custom Function keys can be reassigned in software. Custom indicator colours also available in software.
PHYSICAL CHARACTERISTICS	
Mounting	75mm VESA mount.
Dimensions	10.2-inch: 267mm (W) x 198mm (H) x 66mm (D) 12.8-inch: 329mm (W) x 227mm (H) x 64mm (D)
Weight	10.2-inch: 2.55kg 12.8-inch: 2.91kg Measured with SSD and UPS fitted, no optional internal cards.
Shipping	10.2-inch: 435mm (W) x 306mm (H) x 90mm (D) 12.8-inch: 460mm (W) x 320mm (H) x 105mm (D)
Environmental	Operating from VIN: -40°C to +70°C. Operating from UPS: -40°C to +70°C. Storage: -40°C to +85°C. UPS Charging*: 0°C to +45°C. (*Only if UPS feature is fitted.)
Humidity	EN 60068-2-30, +25°C to +55°C, >95%RH, 6*24h.
Altitude	IEC 60068 PT2-13. Operating 5000m 4hr. Nonoperating 10000m 4hr.
Certification	RCM, FCC, CE, RoHS3, Reach. Other certifications available upon request.
Vibration	Sinusoidal IEC 60068-2-6 Functioning. Random IEC 60068-2-64 Functioning.
Drop	ANSI/ASAE EP455 JUL91, Agricultural Equipment Automation Committee 5.14.2.2 Bench – 400mm drop. 1.2m drop test onto plywood in packaging.
Shock	IEC 60068-2-27, 30g/6ms.
Sealing	IP67.
POWER	
Power Supply	Input voltage range 9 VDC to 36 VDC with over current, re-verse polarity, over and under voltage protection.
Power Consumption	55W~70W Max.
Power Management	Custom power management available through system utility, supporting Vin and Acc power controls. BIOS Supported Wake-on: RTC, USB keyboard and LAN.
Accessory Control	Accessory input for power on/off control through the power connector.
UPS	Internal 19.2Wh LiFePo4 rugged Uninterruptible UPS Battery, 14.4Wh usable capacity.
Transient Protection	Load dump and other transients specified in ISO-7637 for 12v and 24v vehicles.
SUPPORT	
Warranty	24-month warranty from date of dispatch from Motium. Additional 12, 24 and 36-month warranties are also available. Please also see the Motium Terms and Conditions of Sales document.

ORDERING OPTIONS

The TUFF+ Panel PC is available in standard models and can also be customised with a variety of options. White label branding options are also available. Minimum order quantities may apply.

IO cable assemblies must be ordered separately. Standard and custom options are available.

Contact Motium for order codes. Specifications subject to change without notice.