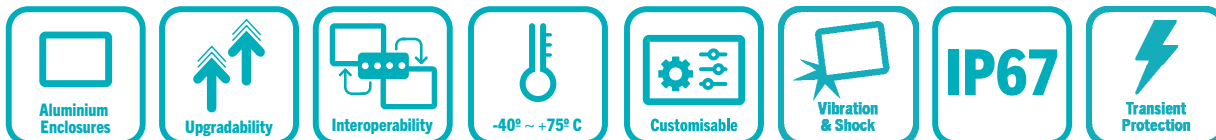


TUFF+

PC

Rugged Box PC



Motium's fixed mount TUFF+ PC is an evolution of our existing TUFF platform. We've added support for new processors and increased the number of wired expansion interfaces and connector options.

At Motium, customisation is standard, so the TUFF+ 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.

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.



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.

Key Markets



MOTIUM

YOUR RUGGED TECHNOLOGY PARTNER

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SPECIFICATIONS

PC	
Processor	Intel® Atom x6425E Quad Core 2.0GHz/3.0GHz Intel® Atom X7-E3950 Quad Core 1.6GHz/2.0GHz 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 32GB to 4TB.
Boot Source	Internal SSD. Internal MicroSD. External USB flash drive. External USB SSD, LAN.
VIDEO AND AUDIO	
Video	Intel® Atom x6000 Series: UHD Graphics Gen. 11 Intel® Atom E3900 Series: 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.
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 IEEE 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	
Overview	Two enclosure options available. Single Height MPC-1025: Offering up to 5x QC I/O Connectors and 6x Wireless TNC Connectors. Double Height MPC-1125: Offering up to 11x QC I/O Connectors and 12x Wireless TNC Connectors.
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.
Video Output	Display Port (DP) on USB-C using ALT mode.
PHYSICAL CHARACTERISTICS	
Mounting	Directly to unit with 6x M6 mounting holes.
Dimensions	MPC-1025: 239mm (W) x 70.5mm (H) x 227mm (D). MPC-1125: 239mm (W) x 100.5mm (H) x 227 mm (D).
Weight	MPC-1025: 1.93kg MPC-1125: 2.31kg Measured with SSD and UPS fitted, no optional internal cards.
Shipping	MPC-1025: 330mm (W) x 85mm (H) x 270mm (D). MPC-1125: 330mm (W) x 125mm (H) x 270mm (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 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+ 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.