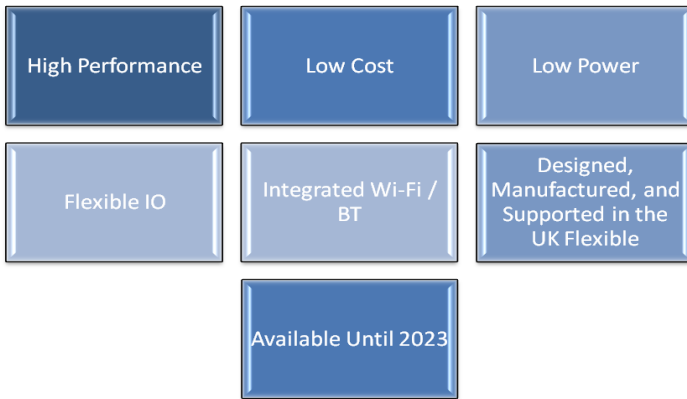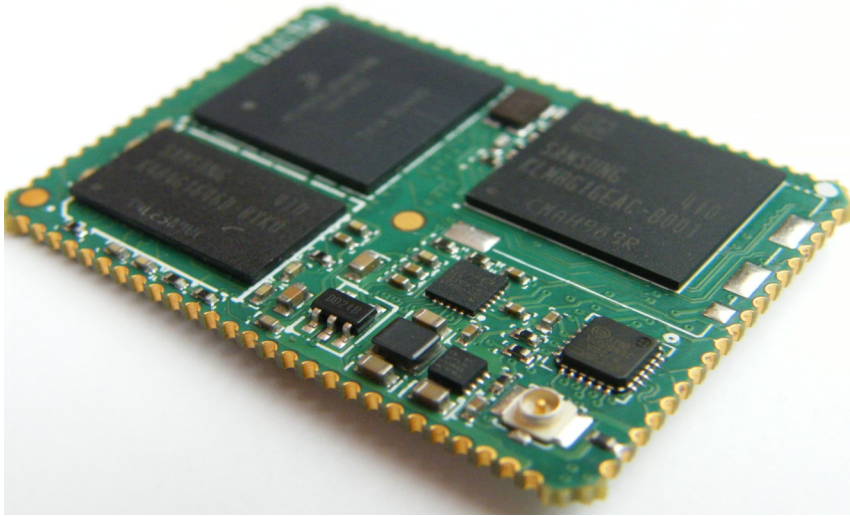# µPassion
Passionate About Technology

MIoT1 -Module for Internet of Things Applications

High Performance

MIoT1 features a Freescale i.MX6 ARM cortex A9 processing core with flexible clocking scheme from 24Mhz up to 1Ghz. This flexibility makes MIoT1 suitable for running high level operating systems like Ubuntu Linux and Android Lollipop, or running bare metal applications that only require lower frequencies .

Low Power

Maximising battery life and reducing standby power are often important design requirements. MIoT1 is designed to operate from a 2.9V to 3.3V power supply making it suitable for battery operation. Dynamic frequency and voltage scaling (DVFS) is supported on the module to reduce power consumption when possible. The module also supports ultra lower power states (sub 75mW) while retaining memory contents.

Low Cost

MIoT1 is competitively priced and is also designed reduce the total cost of a product. MIoT1 implements connectivity via gold pads on the edge of the board removing connector costs while also providing a more reliable connection to the host board. Wi-Fi is implemented with a layout to minimise / remove the requirement for R&TTE testing which can be costly. Typically only a 4-layer host board is required to implement a solution with MIoT1. The module is suitable for SMT reflow soldering or hand soldering.

Low Cost

MIoT1 measures only 38.1mm x 28mm

Integrated connectivity

MIoT1 features 10/100 Ethernet including Physical layer for high speed wired networking. For wireless networking , Wi-Fi connectivity is provided with support for 802.11A / B / G / N standards in both the 2,4Ghz and 5Ghz bands. Both station and access point modes are supported. The module also includes Bluetooth / BLE connectivity. A USB 2.0 Device and USB 2.0 Host port supporting HS / FS / and LS operation are available.
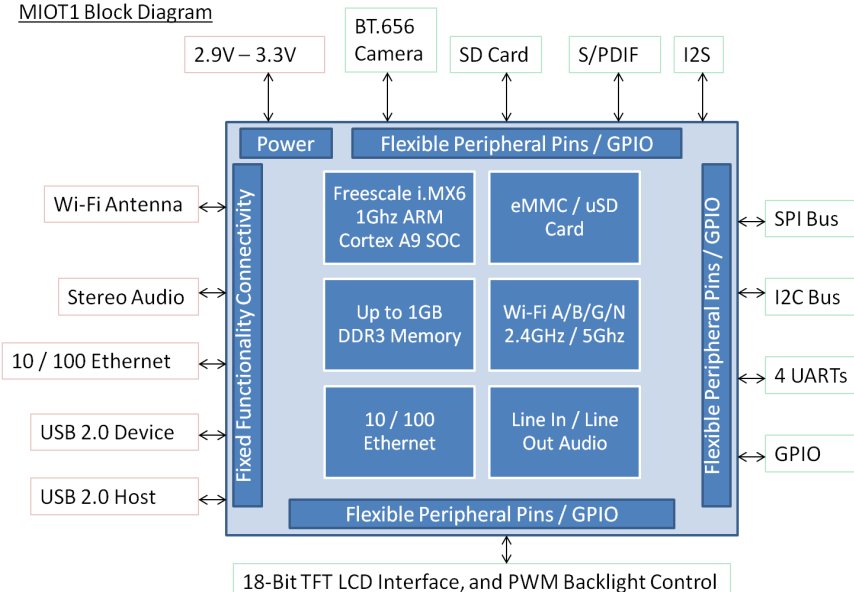
Integrated storage

MIoT1 has the option of µSD card storage or soldered down eMMC memory. Both interfaces support high speed operation at 832 Mbps in UHS-I mode, with theoretical capacities up to 2TB.

Software support

MIoT1 supports Embedded Linux, and Android Lollipop. Support for Microsoft WEC2013, and FreeRTOS is planned.

High Performance	Low Cost	Low Power
Flexible IO	Integrated Wi-Fi / BT	Designed, Manufactured, and Supported in the UK Flexible

Available Until 2023

MIOT1 Block Diagram

- •Fixed Functionality pins
- * Flexible peripheral pins can be configured as GPIOs or as part of a hardware peripherals under software control.

Specification

Standard Functions

CPU	Freescale i.MX6 Solo Lite 1Ghz Cortex A 9 with NEON co-processor
Memory	256MB - 1024MB DDR3
Storage	UHS-I uSD Card \ UHS-I eMMC

Connectivity

Ethernet:
- 10 / 100 Mb,
- Supports Auto MDIX
- Physical layer implemented on module

USB:
- USB Device - HS and FS modes
- USB Host - Hs, FS, and LS modes

Bluetooth:
- Bluetooth 4.1
- Bluetooth BLE 4.0
- U.FL antenna connector on module or chip antenna on host board.*

Wi-Fi:
- 802.11 A/B/G/N
- 2.4Ghz / 5Ghz
- Station and access points
- U.FL antenna connector on module or chip antenna on host board.*

* If a chip antenna is implemented on the host board as per the TI reference design, R&TTE requirements can be minimised or avoided. R&TTE consideration and testing is the responsibility of the host board designer.

Audio:
- On module Audio Codec
- Headphone Output
- Line input

Peripheral Pins:
- Up to 60 General purpose inputs or outputs.
- All peripheral pins have software controllable voltage levels of 1.8v or 3.3v
- Peripheral pins can be GPIOs or form part of dedicated hardware interfaces.

Supported hardware interfaces**:

- 18bit TFT LCD interface with HS/VS/DE LCD power control, and PWM backlight control.
- 4 X UART operating up to 4Mhz
- 1 X SPI port with chip selects
- 1 X I2C bus
- 1X SDIO
- 1X BT.656 camera interface
- S/PDIF Audio
- I2S Audio

** The module has been design to allow at least the above interfaces to be available on the module. Other interfaces can be made available if some of the above interfaces are not required for a particular design. E.g. if the camera interface is not required, an addition SDIO interface, or external i2S interface, or SPDIF interface can be implemented.

Power	Input range - 2.9v - 3.3v
Power Consumption	S3 suspend to RAM - 74mW. Idle - Ubuntu desktop - 480mW.
Operating Environment	Standard: 0-70, Extended: -40 -85
Dimensions	38.1mm x 27.94mm x 5.3mm