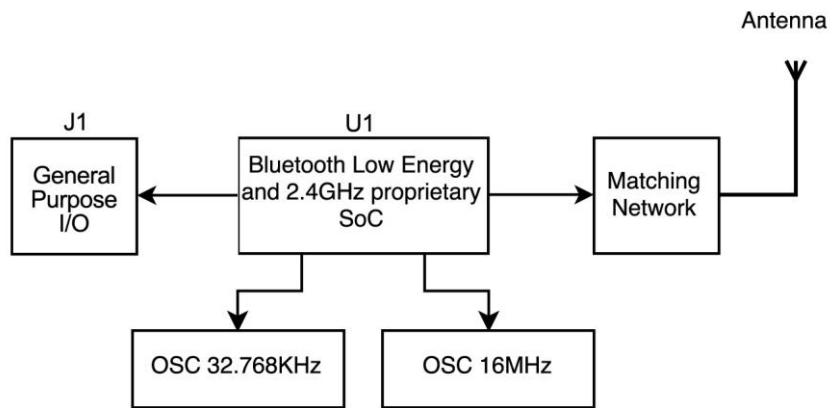


1. SCOPE

This document is intended to assist related parties with the integration of MIOPS-BTM into their host devices.

2. OPERATIONAL DESCRIPTION & BLOCK DIAGRAM



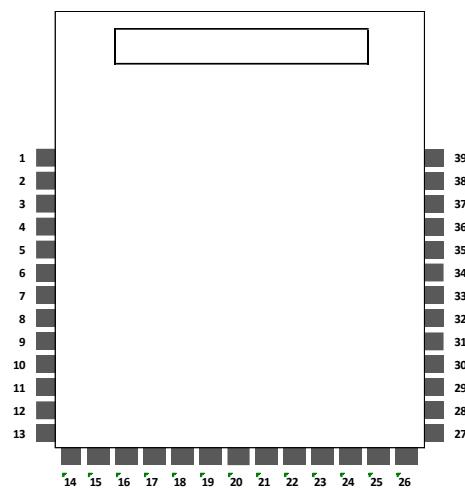
MIOPS BTM devices are designed to meet the needs of OEMs adding robust Bluetooth connectivity within these products.

- 1) DC 1.8~3.6V Power supply
- 2) Minimal System U1, Control the work of the various parts of machine, with external crystal, includes 16MHz as base clock
- 3) J1 is General-Purpose I/O Pins
- 4) Antenna: Antenna
- 5) Frequency Range: 2.4GHz

3. SPECIFICATIONS

CATEGORIES	FEATURE	IMPLEMENTATION
Wireless Specification	Bluetooth	V4.0 Dual Mode
	Frequency	2.402-2.480 GHz
	Range	50 meters
Supply Voltage	Supply	1.8-3.6V
Antenna Option	Internal	Multilayer chip antenna
Physical	Dimensions	15 x 21 x 1 mm
Environmental	Operating	-25C to +75C
Miscellaneous	Warranty	1 Year
Approvals	FCC/CE	MIOPS-BTM

4. PIN DEFINITIONS



#	Pin Name	Pin Function	Description
1	GND	GND	Ground
2	SWD	Digital I/O	System reset (active low). Also hardware debug and flash programming I/O.
3	SWC	Digital Input	Hardware debug and flash programming I/O
4	MP21	Digital I/O	General Purpose I/O
5	MP22	Digital I/O	General Purpose I/O
6	MP23	Digital I/O	General Purpose I/O
7	MP24	Digital I/O	General Purpose I/O
8	MP25	Digital I/O	General Purpose I/O
9	MP26	Digital I/O	General Purpose I/O
		Analog Input	
10	MP27	Digital I/O	General Purpose I/O
		Analog Input	
11	MP28	Digital I/O	General Purpose I/O
12	MP29	Digital I/O	General Purpose I/O
13	VDD	Power	Power Supply
14	GND	GND	Ground
15	MP30	Digital I/O	General Purpose I/O
16	MP0	Digital I/O	General Purpose I/O
		Analog Input	
17	MP1	Digital I/O	General Purpose I/O
		Analog Input	
18	MP2	Digital I/O	General Purpose I/O
		Analog Input	
19	MP3	Digital I/O	General Purpose I/O
		Analog Input	
20	MP4	Digital I/O	General Purpose I/O
		Analog Input	

21	MP5	Digital I/O Analog Input	General Purpose I/O
22	MP6	Digital I/O Analog Input	General Purpose I/O
23	MP7	Digital I/O	General Purpose I/O
24	MP8	Digital I/O	General Purpose I/O
25	MP9	Digital I/O	General Purpose I/O
26	VDD	Power	Power Supply
27	GND	GND	Ground
28	MP10	Digital I/O	General Purpose I/O
29	MP11	Digital I/O	General Purpose I/O
30	MP12	Digital I/O	General Purpose I/O
31	MP13	Digital I/O	General Purpose I/O
32	MP14	Digital I/O	General Purpose I/O
33	MP15	Digital I/O	General Purpose I/O
34	MP16	Digital I/O	General Purpose I/O
35	MP17	Digital I/O	General Purpose I/O
36	MP18	Digital I/O	General Purpose I/O
37	MP19	Digital I/O	General Purpose I/O
38	MP20	Digital I/O	General Purpose I/O
39	GND	GND	Ground

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- . Reorient or relocate the receiving antenna.
- . Increase the separation between the equipment and receiver.
- . Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- . Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in visible area with the following: “Contains FCC ID: 2AD8MMBTM37”
”

End Product Manual Information

The user manual for end users must include the following information in a prominent location “IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter.” This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or colocation with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for reevaluating the end product (including the transmitter) and obtaining a separate FCC authorization. This device is intended only for OEM integrators under the following conditions: The antenna must be installed such that 20 cm is maintained between the antenna and users. As long as a condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).