Azure Sphere MT3620 Starter Kit

AVNET®
Reach Further™
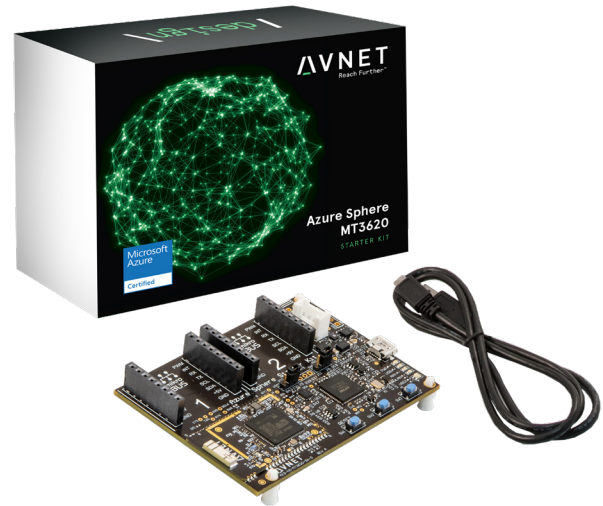
KIT DESCRIPTION

The Avnet Azure Sphere MT3620 Starter Kit supports rapid prototyping of highly secure, end-to-end IoT implementations using Microsoft's Azure Sphere. The small form-factor carrier board includes a production-ready MT3620 Sphere module with WiFi connectivity, along with multiple expansion interfaces for easy integration of off-the-shelf sensors, displays, motors, relays, and more. The downloadable getting started tutorial guides developers through the development steps from board setup to application coding.

The Avnet designed, production-ready Sphere MT3620 module is based on the MT3620 SoC, which includes built-in Microsoft security, WiFi connectivity and the combined versatility and power of an Arm® Cortex™-A7 processor with the low overhead and real-time guarantees of two Arm Cortex-M4F microcontrollers. A suite of on-chip peripherals, real-time clock, Flash, and RAM are also available. In addition to the MT3620, the 33 x 22 mm module includes a dual-band WiFi chip antenna and system clock. Up to 27 configurable GPIOs and three configurable serial ports (UART, I2C, or SPI) are provided as I/Os on the module.

The carrier board connects the Sphere module I/Os to two MikroE Click sockets, an I2C Grove connector, a connector supporting the addition of a 128 x 64 OLED graphical display, a 3D accelerometer, 3D Gyro, temperature sensor, and an ambient light sensor. Debugging is accomplished through a USB-to-UART interface, which also provides the necessary 5V power for the board.

User applications for the embedded Sphere controller are developed in C using Microsoft's Visual Studio IDE and the Azure Sphere SDK. Visual Studio provides a powerful, yet easy-to-use development environment for compiling and debugging application code. The combination of Visual Studio, the versatile carrier card, and the production ready Sphere module delivers a powerful starting point for IoT developers interested in learning, prototyping, and deploying Azure Sphere based solutions.

To purchase this kit, visit: **http://avnet.me/mt3620-kit**

KIT INCLUDES

- Carrier board with Azure Sphere MT3620 module
- USB cable
- Quick start card

TARGET APPLICATIONS

- IoT edge devices
- Consumer appliances
- Smart retail
- Remote access
- Building automation
- Factory automation
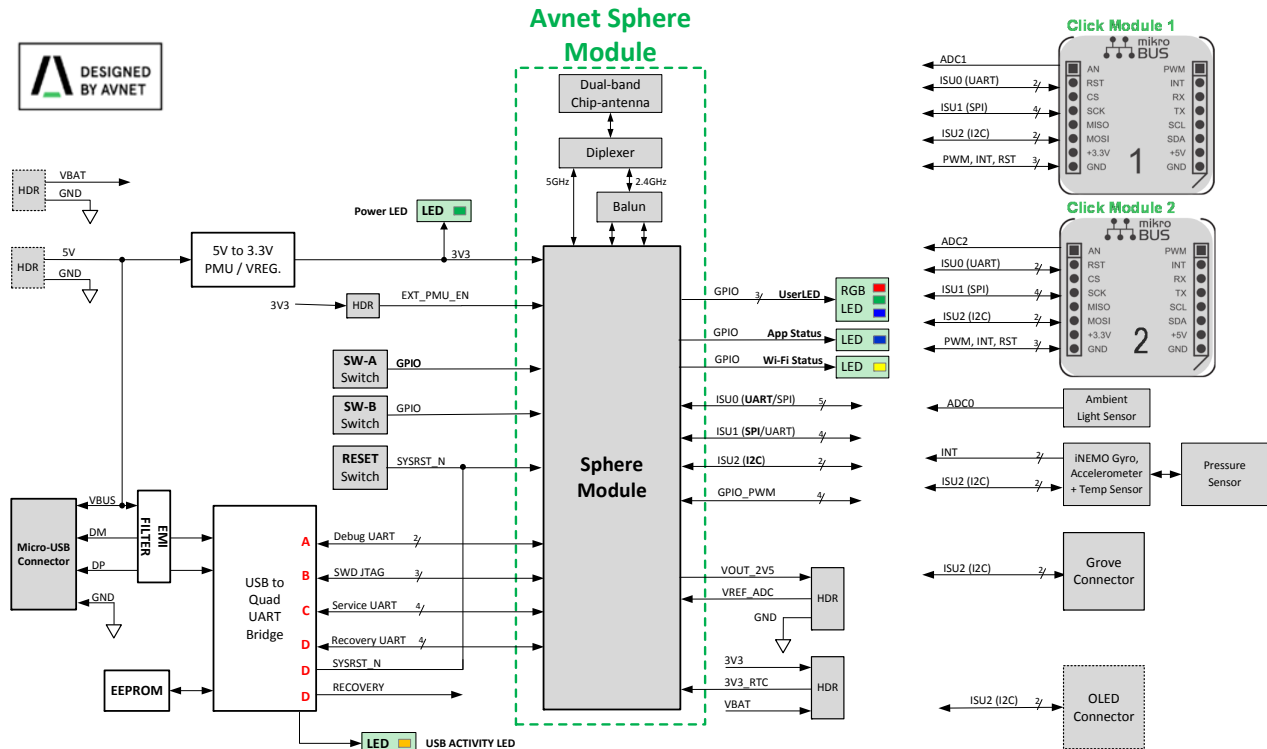
FEATURES

Carrier Board
- Two MikroE Click board expansion sockets
- Grove expansion connector (I2C)
- On-board sensors
  - · 3-Axis accelerometer and gyro
  - · Ambient light
  - · Temperature
  - · Pressure/Barometric
- Interface for optional OLED 128x64 display
- USB Interface
  - · Supports debug, service & recovery UARTs, and JTAG
- User push switches and LEDs
- 5V to 3.3V Power regulation
- DC Supply Input:
  - · USB 5V from host computer
  - · Terminal foot prints for external 5VDC and VBAT supplies

Azure Sphere MT3620 Module
- MT3620AN SoC
- 3x ISU interfaces pre-configured for UART, SPI, I2C
- ADC/GPIO: 3x 12-bit ADC inputs (or 3 GPIOs)
- PWM/GPIO: 9x PWM outputs (or up to 24 GPIOs)
- RTC (requires VBAT supply)
- Dual-band 2.4/5GHz 802.11 a/b/g/n WiFi
- Dual-band 2.4/5GHz chip antenna

NOTE: Azure Sphere OS support for some MT3620 features has not yet been released by Microsoft.

BLOCK DIAGRAM

Avnet Sphere Module

DESIGNED BY AVNET

HDR — VBAT, GND

HDR — 5V, GND

5V to 3.3V PMU / VREG.

Power LED — LED

Dual-band Chip-antenna

Diplexer

5GHz — 2.4GHz

Balun

3V3

3V3 — HDR — EXT_PMU_EN

SW-A Switch — GPIO

SW-B Switch — GPIO

RESET Switch — SYSRST_N

Sphere Module

GPIO — UserLED — RGB LED

GPIO — App Status — LED

GPIO — Wi-Fi Status — LED

ISU0 (UART/SPI) 5

ISU1 (SPI/UART) 4

ISU2 (I2C) 2

GPIO_PWM 4

VOUT_2V5

VREF_ADC — HDR

GND

3V3

3V3_RTC — HDR

VBAT

Micro-USB Connector — VBUS, DM, DP, GND

EMI FILTER

USB to Quad UART Bridge
- A — Debug UART 2
- B — SWD JTAG 3
- C — Service UART 4
- D — Recovery UART 4
- D — SYSRST_N
- D — RECOVERY

EEPROM

LED — USB ACTIVITY LED

Click Module 1
mikroBUS

ADC1
ISU0 (UART) 2
ISU1 (SPI) 4
ISU2 (I2C) 2
PWM, INT, RST 3

AN — PWM
RST — INT
CS — RX
SCK — TX
MISO — SCL
MOSI — SDA
+3.3V — +5V
GND — GND

1

Click Module 2
mikroBUS

ADC2
ISU0 (UART) 2
ISU1 (SPI) 4
ISU2 (I2C) 2
PWM, INT, RST 3

AN — PWM
RST — INT
CS — RX
SCK — TX
MISO — SCL
MOSI — SDA
+3.3V — +5V
GND — GND

2

ADC0 — Ambient Light Sensor

INT 2
ISU2 (I2C) 2 — iNEMO Gyro, Accelerometer + Temp Sensor — Pressure Sensor

ISU2 (I2C) 2 — Grove Connector

ISU2 (I2C) 2 — OLED Connector

FEATURED SUPPLIERS

Microsoft MikroElektronika DEVELOPMENT TOOLS I COMPILERS I BOOKS Pulse Electronics molex ST life.augmented MPS samtec

PARTS

Part Number	Description	Resale
AES-MS-MT3620-SK-G	Azure Sphere MT3620 Starter Kit	$75

RELATED PARTS

Part Number	Description	Resale
AES-MS-MT3620-M-G	Azure Sphere MT3620 Module with Chip Antenna	Contact Avnet
AES-MS-MT3620-UFL-M-G	Azure Sphere MT3620 Module with u.FL Connectors	Contact Avnet
1461530050	Molex 2.4GHz/5GHz Flexible Wi-Fi Antenna (50mm 50 ohm RF cable, U.FL connector)	Contact Avnet
MikroE Click boards	https://www.mikroe.com/click	Contact Avnet

Countries Available for Purchase: Americas and EMEA

CONTACT INFORMATION

North America
2211 S 47th Street
Phoenix, Arizona 85034
United States of America
eval.kits@avnet.com
1-800-585-1602

Europe (Silica)
Gruber Str. 60c
85586 Poing Germany
marketing@silica.com
+49-8121-77702