Azure Sphere
MT3620 Starter Kit

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 MediaTek 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
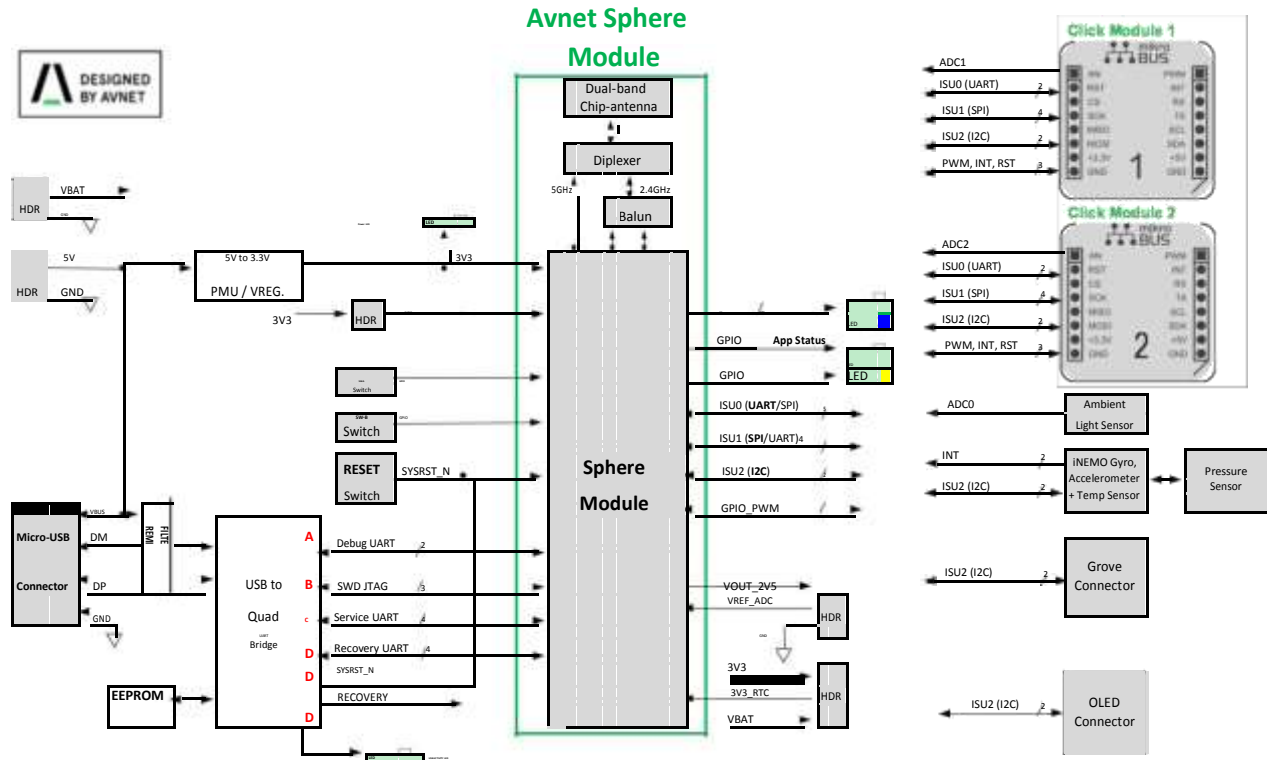
Carrier Board
- Two MikroE Click board expansion sockets
- Grove expansion connector (I2C)
- On-board sensors
    • 3-Axis accelerometer and gyro
    • Ambient light
    • Temperature
    • Pressure/Barometric
- Interface for optional OLED 128x64 display
- USB Interface
    • Supports debug, service & 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
- MediaTek 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

Dual-band Chip-antenna

Diplexer

5GHz   2.4GHz

Balun

VBAT
HDR

5V
HDR   GND

5V to 3.3V
PMU / VREG.

3V3

3V3
HDR

Switch

Switch

RESET   SYSRST_N
Switch

Micro-USB   VBUS
DM
Connector   DP
GND

EEPROM

USB to
Quad
Bridge

A
B
c
D
D
D

Debug UART   2
SWD JTAG
Service UART
Recovery UART   4
SYSRST_N
RECOVERY

Sphere Module

GPIO   **App Status**
GPIO   LED
ISU0 (**UART**/SPI)
ISU1 (**SPI**/UART)4
ISU2 (**I2C**)
GPIO_PWM

VOUT_2V5
VREF_ADC
HDR

3V3
3V3_RTC   HDR

VBAT

Click Module 1   mikroBUS
ADC1
ISU0 (UART)   2
ISU1 (SPI)   4
ISU2 (I2C)   2
PWM, INT, RST   3   1

Click Module 2   mikroBUS
ADC2
ISU0 (UART)   2
ISU1 (SPI)   4
ISU2 (I2C)   2
PWM, INT, RST   3   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   Pulse Electronics   molex   ST life.augmented   MPS   samtec

PARTS

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

RELATED PARTS

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

Countries Available for Purchase: Americas and EMEA

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