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Azure Sphere Starter Kit

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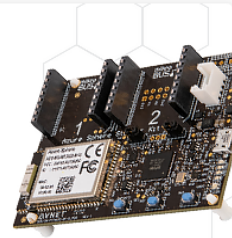
◭ DESIGNED BY AVNET

Azure Sphere MT3620 Starter Kit

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 Wi-Fi connectivity, along with multiple expansion interfaces for easy integration of sensors, displays, motors, relays, and more. Also see the **Sphere Module** and **Guardian 100**.

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Technical Specification | Reference Design | Technical Documents | Discussions

Overview

This Starter Kit highlights Avnet's certified, production-ready Sphere MT3620 module which is based on the highly integrated MediaTek MT3620AN tri-core Wi-Fi SoC device. Embedded user applications targeting it's 500 MHz ARM Cortex-A7 application processor are built and debugged using Microsoft's popular Visual Studio IDE.

The SoC also includes two 200 MHz ARM Cortex-M4F MCU cores to meet real-time I/O requirements, plus a rich variety of on-chip peripherals (GPIO, UART, I2C, SPI, I2S, PWM, ADC) that can be assigned to any of the three processor cores. **The kit includes:** A carrier board with Azure Sphere MT3620 module, USB cable, and Quick Start Card. **Product Brief** ▸

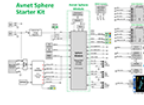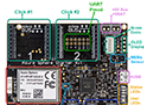**Click on the images to enlarge**

Front View	Side View	Back View	Block Diagram

Functional Overlay	Product Package

Features / Hardware Specification / Kit Includes / Intro Video / Target Applications / Reference Design / Technical Documents

Features

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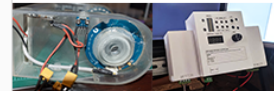 - Terminal footprints for external 5V DC and VBAT

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 Wi-Fi
- Dual-band 2.4/5GHz chip antenna

Home Is Where the Hack Is CHALLENGE

Our challengers used the Azure Sphere Starter Kit to build smart home prototypes, see which creations came out on top!

See the Winners

Ask A Question About Azure Sphere Starter Kits

Type your question

Ask it

○ Terminal footprints for external 5V DC and VBAT
supplies

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

Target Applications

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

Kit Includes

- Carrier board with Azure Sphere MT3620 module
- USB Cable
- Quick Start Card

Hardware Specification

Specification	Description
Avnet Azure Sphere MT3620 Module	1x 500MHz ARM Cortex A7, 4MB SRAM 2x 200MHz ARM Cortex M4F cores, 64KB SRAM - OS: Azure Sphere Operating System for end-to-end security - ISU interfaces: 3 of 5 available: Pre-configured for UART, SPI, I2C (max interface rates are: UART=3Mbps, SPI=40MHz, I2C=1MHz) - ADC/GPIO: 3x 12bit ADC inputs (or can be used as GPIOs) - PWM/GPIO: 9x PWM outputs, or can be used as GPIOs (for a total of up to 24 GPIOs) - RTC : On-chip, requires VBAT supply - Wi-Fi: Dual-band 2.4/5GHz 802.11 a/b/g/n - Antenna: On-board dual-band 2.4/5GHz chip antenna (Pulse W3006) - Operating Temperature: -30°C ~ 85°C - Dimensions: 33mm x 22mm x 3.68mm - Certification: FCC, IC, CE, MIC (pending), RoHS
USB to Serial 4-Port Interface	- Debug, Service, Recovery UARTs - SWD Interface - System Reset and Recovery Signals
On-board Sensors	- Ambient Light Sensor: Analog (sampled by 12 bit ADC) - LSM6DSO: 3-axis Accelerometer, 3-axis Gyro and Temperature sensor - LPS22HH: Barometric Pressure and Temperature sensor
Hardware Expansion Interfaces (multiple standards supported)	- MikroE Click Board Expansion Sockets (two sockets. I2C,SPI,UART,ADC,etc interfaces) - UART/BLE connector (2x6 pin R/A connector, compatible with a subset of Pmod boards) - Grove Expansion Connector (I2C) - OLED 128x64 Display Interface (I2C), - option not fitted
Push-Button Switches (3)	Reset, User-A, User-B
User and Status LEDs (7)	- RGB User LED - APP. User LED - WLAN User LED - USB Status LED - PWR Status LED
5V to 3.3V DC Power Regulation (with over/under voltage protection) and Power Interfaces for	- USB 5V DC from Development Computer (or 5V DC adaptor, option not included) - AUX 5V DC (compact terminal, option not fitted) - VBAT Battery Backup (compact terminal, option not fitted) - ADC VREF External Reference Input (2-pin header)
Operating Temperature	-30°C ~ 85°C
Dimensions	75mm x 55mm
Certification	FCC, IC, CE, MIC (pending), RoHS

Video

Introduction to the Avnet Azure Sphere Starter kit from CES 2019

01:45

Jason Struble
Technical Sales Engineer
Avnet

Learn How to Rapidly Secure Your IoT Design with Azure Sphere   < Share

Expansion Options

MIKROE

Click Board Expansion
- Two Click board sockets
- Over 620+ different Click boards available!
  (3 new Click boards being added per week!)

Other Connectors
- 2-pin battery connector
- Grove connector (I2C)
- OLED display connector

Functions such as:
- Additional User RGB LEDs
- SPI to Ethernet bridge
- Sensors, Relays, etc
can be added using Click boards!

AVNET

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📄 Download slide deck for Secure Your IoT Design with Azure Sphere video

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