About Shiratech-Solutions

• Owned by A.Y. Group (Supply chain management, engineering, manufacturing)

• New offices in USA and Germany

• ODM for ADI, ST, INTEL, Quectel, Samsung, NXP, Altera, Qualcomm
  • 96Boards product line
  • Spark product line
  • IoT

• H/W and S/W design services

• SOM & IoT Gateways

• In-house production - ISO9001, ISO13485, AS9100C
96Boards Portfolio and Road-map

2018 Portfolio – 5 Mezzanine boards
Full Interoperability for stackable mezzanine boards

- LTE Mezzanine
- NB-IOT Mezzanine
- Camera Mezzanine
- Bosch Sensors Mezzanine
- MAX10 FPGA Mezzanine

96Boards to Arduino/RPI bridge
96Boards Portfolio and Road-map

2019 Road-Map – 2 NEW 96Boards Baseboards

STM32P157 Based Baseboard
IOT Edition Extended

SC20 Based Baseboard
CE Edition Extended
More ARM Based IoT Products from Shiratech coming at 2019

**iCOMOX**
Intelligent condition monitoring and predictive maintenance box

**Body-Cam**
Live video streaming over LTE open platform
IOT BOX CUBE
IOT BOX CUBE - Introduction

- General purpose IOT gateway - connect your sensors and actuators to the cloud
- Edge device
- LTE NB-IOT, WiFi and BT connectivity
- External sensors connectors
- Based on combination of standard **96Boards** baseboard + proprietary mezzanine
- Running Linux (Yocto / OpenEmbedded 4.19 Kernel version)
IOT BOX CUBE Key Features - CPU

- ST Microelectronics STM32MP157C
  
  **Core**
  - 32-bit dual-core Arm® Cortex®-A7 - Up to 650MHz
    - L1 32-Kbyte I / 32-Kbyte D for each core
    - 256-Kbyte unified level 2 cache
    - Arm® NEON™ and Arm® TrustZone®
  - 32-bit Arm® Cortex®-M4 with FPU/MPU – Up to 209 MHz (Real time applications)

  **Memory**
  - DDR3 – 64M x 32bit (2Gbit)
  - SLC NAND FLASH – 1G x 8bit (1Gbit)

  **Security/safety**
  - Secure boot, TrustZone® peripherals, active tamper
IOT BOX CUBE Key Features - Communication

• Quectel BG96 LTE Modem
  • LTE CAT M1/NB1/EGPRS modem
  • Modem speed 300Kbps DL / 375Kbps UL (M1)
  • GPS
  • Low power
  • Global version

• Murata LBEE5KL1DX WiFi+BT Module
  • WLAN 802.11b/g/n up to 65Mbps
  • Bluetooth v4.2+EDR+BLE
IOT BOX CUBE Key Features – Internal Sensors

• Gas sensor CCS811 (AMS)
  • Ultra Low Power Digital Gas Sensor for Monitoring Indoor Air Quality

• 2 Microphones IM69D130 (Infineon)
  • High performance digital XENSIVTM MEMS microphone
IOT BOX CUBE – External Device Connectors

- External GPIO interface
  - 2 X DI (Opto-isolators 3.75KV)
  - 2 X DO (250VAC, 220VDC – Max, 1A)
  - 2 X AI (4mA-20Ma)
- External digital sensors interface
  - 1 X I2C
  - 1 X SPI (4 Wire)
  - 1 X UART
- Optional wall mount accessory
IOT BOX CUBE – Mechanical and Power

- 1 x USB OTG port for charging and communication
- SIM card connector
- SD card connector
- Built in rechargeable Li-ion battery 1AH
- L x W x H: 97mm x 97mm x 14.5mm
- Color: Purple, black and white
IOT BOX CUBE – SW Debug Tools

**Cortex A7 Core:**

- Debug port console, UART over USB, standard LINUX Tools
- Boot form SD-CARD
- Boot from USB
- Boot from NAND FLASH

**Cortex M4 Core:**

- Debug – Via ST-LINK, OpenOCD
- Debugger IAR
- IAR Embedded Workbench
IOT BOX CUBE – Mezzanine Block Diagram
IOT BOX CUBE – Using Standard 96Board In a Commercial Product

Proprietary mezzanine

Shiratech 96Boards IoT Extended Baseboard

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IOT BOX CUBE – Mechanical Design

- 32-BIT DUAL-CORE ARM® CORTEX®-A7
- UP TO 650 MHZ (UP TO 4158 COREMARK®)
- L1 32 KBYTE I / 32 KBYTE D FOR EACH CORE
- 256 KBYTE UNIFIED LEVEL 2 CACHE
- ARM® NEON™ AND ARM® TRUSTZONE®
- 32-BIT ARM® CORTEX®-M4 WITH FUlLMuPVM
IOT BOX CUBE - Mechanical Design

Form Factor:
96Boards IoT Edition – Extended

PN:
SRT-96B-MAIN-IOT-NBIOT-STM-MP157
Thank You For Your Attention