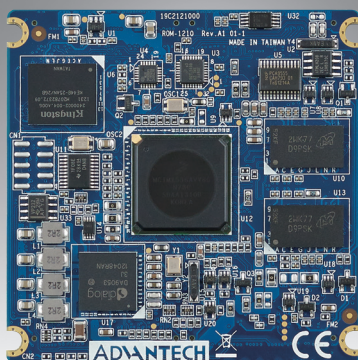


# ROM-1210

## NXP ARM® Cortex®-A8 i.MX53 RTX 1.6 Module



## Introduction

### Industrial Design, I/O Intensive COM

ROM-1210 Computer-on-Module (COM) integrates an ARM Cortex-A8 800MHz NXP i.MX53 series ultra low power SoC and I/O solution chips to be Windows® Embedded Compact 7, and Linux solution-ready! NXP i.MX53 supports 2D, 3D graphics acceleration, full HD 1080P video decoding and a HD 720p video encoding hardware engine.

ROM-1210 with 3.3V I/O Voltage current and wide-range temperature support is specially designed for industrial applications.

### Design-in Package Ensures Efficient Evaluation and Implementation

The Design-in Package not only includes all necessary H/W boards, fixtures and LCD related cables, but also includes the Advantech-customized API, utility & reference codes. And of course, it includes all design related documentations and a white paper for detailed technical know-how.

Two supporting mechanisms are included in the Design-in Package:

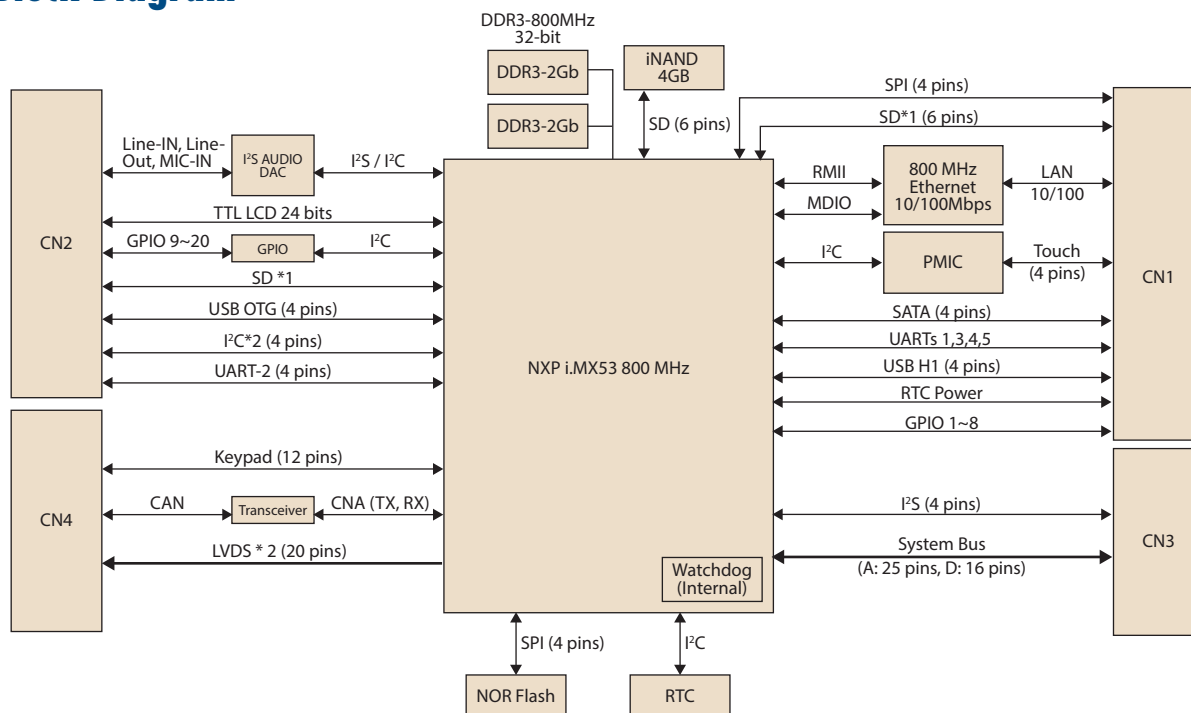
**Reference Kit:** Including Advantech reference Customer Solution Board (CSB) and all documentation for CSB design and manufacture (e.g. : Schematics, and pin definition file).

**LCD Kit:** Including a LCD panel with touch screen and related cables. All goods are pre-verified and supported in Advantech's reference S/W package.

## Specifications

|                  |                       |                                                                                                            |
|------------------|-----------------------|------------------------------------------------------------------------------------------------------------|
| Form Factor      |                       | RTX1.6                                                                                                     |
| Processor System | CPU                   | NXP ARM Cortex-A8 i.MX53 800 MHz                                                                           |
| Memory           | Technology            | DDR3 800 MHz                                                                                               |
|                  | Capacity              | On-board DDR3 512 MB                                                                                       |
|                  | Flash                 | 4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader                             |
| Graphics         | LVDS                  | 2' 24-bit LVDS, 1024 x 768                                                                                 |
|                  | HDMI                  | -                                                                                                          |
|                  | Parallel RGB          | 1 TTL 24-bit, 1600 x 1200                                                                                  |
|                  | VGA                   | -                                                                                                          |
|                  | Graphics Engine       | 1 IPU, OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1                                                  |
| Ethernet         | H/W Video Codec       | Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP<br>Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP |
|                  | Chipset               | NXP i.MX53 integrated RMII                                                                                 |
|                  | Speed                 | 1 x 10/100 Mbps                                                                                            |
| RTC              | RTC                   | -                                                                                                          |
| WatchDog Timer   |                       | 256-level timer interval, from 0 ~ 128 sec                                                                 |
| I/O              | PCIe                  | -                                                                                                          |
|                  | SATA                  | 1 SATA I                                                                                                   |
|                  | USB                   | 1 USB 2.0, 1 USB 2.0 OTG                                                                                   |
|                  | Audio                 | I²S                                                                                                        |
|                  | SPDIF                 | -                                                                                                          |
|                  | SDIO                  | 2                                                                                                          |
|                  | Serial Port           | 5 UART (2 x 2 wire, 3 x 4 wire w/ 3.3V)                                                                    |
|                  | SPI                   | 1                                                                                                          |
|                  | CAN                   | 2 x CAN bus 2.0B                                                                                           |
|                  | GPIO                  | 20                                                                                                         |
|                  | I²C                   | 2                                                                                                          |
|                  | Camera Input          | -                                                                                                          |
|                  | System Bus            | Address: 25 bits, Data: 16 bits                                                                            |
|                  | Touch                 | 1                                                                                                          |
| Power            | Keypad                | 6 x 6 Matrix                                                                                               |
|                  | Power Supply Voltage  | 3.3 ~ 3.6 V                                                                                                |
|                  | Power Consumption     | 2.2W                                                                                                       |
| Environment      | Operating Temperature | 0 ~ 60 °C/ -40 ~ 85 °C                                                                                     |
|                  | Operating Humidity    | 0% ~ 90% relative humidity, non-condensing                                                                 |
| Mechanical       | Dimensions (W x D)    | 68 x 68 mm                                                                                                 |
| Operating System |                       | Linux Kernel v2.6 (WEC7 by project support)                                                                |
| Certifications   |                       | CE/FCC Class A                                                                                             |

## Block Diagram



## Ordering Information

| Part No.          | CPU                    | Memory | Flash Memory | UART | LAN | USB Host | USB OTG | Display          | SATA | SD | CANBus | I <sup>2</sup> C | SPI | Size             | Power Input          | Operating Temperature |
|-------------------|------------------------|--------|--------------|------|-----|----------|---------|------------------|------|----|--------|------------------|-----|------------------|----------------------|-----------------------|
| ROM-1210CF-A78AAE | NXP i.MX536<br>800 MHz | 512 MB | 4 GB         | 5    | 1   | 1        | 1       | 2 18/24-bit LVDS | Yes  | 2  | 1      | 2                | 1   | 68 x 68 x 7.5 mm | 3.3 V & 3.6 V<br>+5% | 0 ~ 60 °C             |
| ROM-1210WF-A78AAE | NXP i.MX536<br>800 MHz | 512 MB | 4 GB         | 5    | 1   | 1        | 1       | 2 18/24-bit LVDS | Yes  | 2  | 1      | 2                | 1   | 68 x 68 x 7.5 mm | 3.3 V & 3.6 V<br>+5% | -40 ~ 85 °C           |

## Development Board

| Part No.    | Description |
|-------------|-------------|
| 96920CSB02E | RTX 1.6 CSB |

## Optional Accessories

| Part No.      | Description                                                   |
|---------------|---------------------------------------------------------------|
| 1700100250    | Debug port cable                                              |
| EWM-W150H02E  | Advantech 802.11bgn/RT5390 1T1R /USB signal                   |
| 1750007050-01 | WiFi RP-SMA short SMA Jack (9.5mm) to U.FL_100mm (WiFi Cable) |
| 1750000318    | EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384 (WiFi Antenna)  |
| EWM-C106FT01E | Cellular, HSUPA/WCDMA/GPRS,Full Mini PCIe                     |
| 1750007156-01 | Cellular/GPS SMA Short JACK(9.5MM) L=100mm (3G Cable)         |
| 1750005865    | Antenna L=10.9cm 500hm AN8921F-5701SM (3G Antenna)            |

## Dimensions

