2017 RISC/ARM选型指南

基于Linux与Android通用开发平台

／标准化软件与硬件
／完善的外围设备
／完善的ARM生态系统

ADVANTECH
研華科技

研华服务专线：800-810-0345
www.advantech.com.cn

标准化 ARM 平台加速产品上市

ARM 技术凭借着成本效益和尺寸紧凑的优势引领着物联网时代的变革。早在 2010 年，嵌入式市场就充斥着各种硬件平台和软件服务，因此平台统一化和版本控制非常困难。为将 ARM 解决方案便捷、快速的引入市场，研华提供了一种具有开放式设计指导和相关原理图的标准化硬件平台，从而帮助客户将通用硬件平台集成至特定应用之中。为实现上述目标，研华还提供了统一、有序的高级软件包以及长供货周期支持。

我们一直坚信，软件和硬件标准化将是加速产品上市的关键法宝。由于寻找兼容外设和端口适用驱动非常耗时，大多数 ARM 开发人员都备受外设集成困扰。因此，自那时起，研华团队致力于预先整合并验证外设模块，并为客户提供驱动即用型软件。这样不仅节约了大量时间，还加速了客户的 ARM 解决方案开发。

然而，这仍不足以扭转 ARM 技术开发的混乱局面。为了重组生态系统，我们不仅需要推动硬件和软件的统一，还需要吸收更多的合作伙伴加入生态系统，以便提供更多的特性来助力应用开发并推动产品更快上市。研华坚信 ARM 技术应当进行分享，并且其 统一的软硬件和服务将为 ARM 市场打造一种全新的协作模式。

研华标准化 BSP

为推动嵌入式应用程序开发和 ARM 解决方案的普及，研华提供了标准化、模块化板卡 BSP，以便为用户提供更好的软件开发经验。研华加载程序提供优化配置设置，、灵活的引导选项和安全软件保护功能，对客户的应用设计颇有助益。

另外，研华内置 SUSI API 和 WISE-PaaS SDK 可以实现可靠的硬件监视 / 控制以及安全的 IoT 连接。集成设备示例代码可帮助客户快速评估出品质可靠的外设；同时，研华也会发布完整的产品规格、设计指南、编程说明以协助客户进行系统集成。

研华的板级支持包 (BSP) 升级服务为嵌入式 Linux 创新提供了兼容性和灵活性保障，也支持客户采用各种最新发布的 Linux/ Android 版本。我们一直致力于与生态系统合作伙伴紧密合作，共同提供可靠的软件服务与高效的技术支持，从而帮助客户提高 ARM 项目开发的速度。

研华 BSP 主要特性

统一的架构 **BSP 持续更新** **完整的文档**

研华设计协助服务

过去，由于缺乏技术知识与经验且生态系统不够完善，基于 ARM 的应用开发是一件极其耗费时间和资源的事情。研华深知这一点，因此创建了一种全新的服务模式，并通过具有丰富技术知识背景的服务团队来提升产品设计协助服务水平。我们提供软件、硬件和集成等全方位协助，同时也将帮助客户进行软件开发、板卡设计、测试执行、系统集成和故障排除，最终将缩短您的开发周期并将产品快速推向市场。

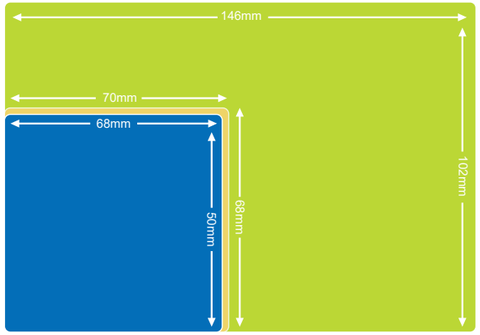
软件
- OS 支持
- 中间件 /SUSISI API
- 板卡支持包
- 客制化

硬件
- 开发套件
- 设计参考
- 设计审查
- 故障排除

集成
- 测试计划 / 方案
- 功能 / 可靠性测试
- 认证
- 外设与附件

生产制造
- 全球配送
- 全球售后服务
- 供货周期长
- 品质卓越

标准化硬件解决方案



早在十余年前，研华即以 ARM 为始研究 RISC 技术。我们坚信标准化规格是推动 RISC 得到更广泛应用的关键因素。秉承着这一理念，研华陆续推出 COM（核心模块）、SBC（单板计算机）和 ARM 开发套件。

RTX（研华）
68mm x 68mm

Qseven
70mm x 70mm

3.5" SBC
146mm x 102mm

核心模块

核心模块 (COM) 是一种将所有组件都进行紧密集成的平台，并已通过严格验证且具有良好的兼容性。模块化设计可帮助开发人员快速构建专有载板以打造自有特定应用。

RTX

研华推出了 RTX 2.0 (Ruggedized Technology eXtended) 规范，这是一种专为军事、物流和交通运输等坚固型应用设计的 RISC 标准平台。

抗振　抗氧化　宽温

Qseven

Qseven 是由 SGET 定义的标准 COM 规格，其特定针脚输出基于高速 MXM 接口。Qseven 主要面向于手持、HMI 和数字标牌应用。

尺寸紧凑　无风扇　灵活





RTX	RTX	Qseven	Qseven	Qseven
ROM–3310	**ROM–3420**	**ROM–7420**	**ROM–7421**	**ROM–7510**
▪ TI Sitara AM3352 Cortex-A8 ▪ 1 GHz 单核 ▪ 支持宽温和电源输入 ▪ 专为自动化而设计	▪ NXP i.MX6 Cortex-A9 1GHz ▪ 双 / 四核 ▪ 卓越的显示性能 ▪ 专为坚固型应用设计	▪ NXP i.MX6 Cortex-A9 1GHz ▪ 双 / 四核 ▪ 经济高效的模块解决方案 ▪ 专为网络和数字标牌应用而设计	▪ NXP i.MX6 Cortex-A9 1GHz ▪ 双核 Plus/ 四核 Plus ▪ 突出的多媒体性能 ▪ 专为 Kiosk 和 HMI 而设计	▪ TI Sitara AM5728 ▪ Cortex-A15 双核 ▪ 出色的计算性能 ▪ 专为视频监控应用而设计 ▪ 内置 DSP

单板计算机

研华长期开发单板计算机 (SBC) 系列产品；产品均采用标准规格，具有紧凑尺寸、丰富 I/O、超低功耗以及易于扩展等多种特性，因此可帮助客户降低硬件设计成本并加快产品上市。





RSB–6410	RSB–4221	RSB–4410	RSB–4411	RSB–4760
▪ NXP i.MX6 Cortex-A9 1GHz 双 / 四核 ▪ 强大的多显示功能、支持多 I/O 和无线连接 ▪ 专为 kiosk 和 IoT 网关而设计	▪ TI Sitara ARM Cortex3358-A8 1GHz 单核 ▪ 双以太网和 M.2 key E，用于无线连接 ▪ 专为 HMI 应用而设计	▪ NXP i.MX6 Cortex-A9 1GHz 双 / 四核 ▪ 支持 LVDS、VGA 和 HDMI 显示 ▪ 专为标牌应用而设计	▪ NXP i.MX6 Cortex-A9 1GHz 双 / 四核 ▪ 支持丰富 I/O、宽温工作和电源输入 ▪ 专为 HMI 和工业控制应用而设计	▪ Qualcomm ARM Cortex A-53 APQ8016 四核，最高可达 1.2 GHz ▪ 高度集成的板载无线连接无线 - Wi-Fi、BT 和 GNSS ▪ 专为 IoT 应用而设计

开发套件

进行产品原型设计时，开发人员需要不停地准备线材、电源适配器和外围设备以便开始平台评估。这非常耗费时间和精力，于是研华发布了包含主板、电缆、电源适配器、LED 面板和 SD 卡在内的一系列开发套件，可充分满足客户之所需。同时，我们已内置 Linux OS 镜像，能够帮助客户实现快速评估。

Qseven 2.0	RTX2.0	Qseven 2.1	3.5” SBC
ROM–DK7421	**ROM–DK3420**	**ROM–DK7510**	**RSB–DK4760**
			
▪ NXP ARM Cortex-A9 i.MX6 双 / 四核 Plus 1 GHz ▪ 动态显示和内存性能增强 ▪ 专为便携应用而设计	▪ NXP ARM Cortex-A9 i.MX6 双 / 四核 1 GHz ▪ 可靠的机械设计与先进的节能技术完美结合 ▪ 专为坚固型应用设计	▪ TI Sitara AM5728 Cortex-A15 双核 ▪ 出色的计算性能 ▪ 专为视频监控应用而设计	▪ Qualcomm ARM Cortex-A53 APQ8016 四核，最高可达 1.2 GHz ▪ 高度集成的板载无线连接无线 - Wi-Fi、BT 和 GNSS ▪ 专为 IoT 应用而设计

完善的外围设备

鉴于外设集成以及驱动支持不够成熟或开发不完善的影响，ARM应用开发遭遇重重困难。
大多数工程师都选择依赖尚未充分验证的开放源代码驱动，且往往需要进行一定修改才能集成于不同的平台。为使应用开发更为简便，研华将兼容外设整合至内核源代码以及随附详细文档中以进行外设集成，从而有效简化ARM平台集成流程。

可靠工业级外围设备

研华提供高质量品牌外围设备，同时还提供长供货周期、全球质保、快速分发以及灵活客制化服务。工业级外围设备包括显示屏套件、RF模块、存储设备和扩展卡。

可靠工业级外围设备

为了帮助用户快速连接外设, 我们已将驱动预置于Linux内核，因此可节约交叉编译和驱动程序移植的时间。驱动已经在Android和Windows等不同操作系统中进行过验证。

驱动移植和设备测试文档

为帮助用户集成更多外设，研华乐于分享驱动集成的专业技术，藉此帮助用户将驱动移植到自有平台。我们提供的测试工具, 命令和示例代码，均可在研华在线论坛中轻松获取；同时，研华也为需要帮助的客户提供咨询服务。

WiFi 模块

EWM-W150H02E
1750005885 RF Cable
1750000318 Antenna

WiFi/BT Combo 模块

EWM-W162M201E
1750007965-01RF Cable
1750002842 Antenna

3G 模块

968EMW0093
1750007156-01RF Cable
1750005865 Antenna

GPS 模块

EWM-G108H01E
1750006264 RF Cable
1750007991-01Antenna

电源适配器

96PSA-A36W12R1
ADAPTER 100-240V 36W
12V 3A DC PLUG 90°

面板

IDK-1115R-40XGC1E
15" 1024 x 768 LED面板，
400 nits，带5W电阻式触摸屏

IDK-1107WR-40WVA1E
7" 800 x 480 LED面板，
400 nit，带4WR触摸屏

IDK-1107WP-50WVA1E
7" 800 x 480 LED面板，
500 nit，带投射电容式触摸屏

IDK-1115P-40XGC1E
15" 1024 x 768 LED面板，
400 nit，带投射电容式触摸屏

96LEDK-A070WV40NB1
7" 800 x 480 LED面板，400
nit，无触摸屏

96LEDK-A190SX35NF1
19" 1280 x 1024 LED
面板，350 nit，无触摸屏

应用案例

全面ARM开发套件和设计协服务，完美适用紧凑型钞票清分机

过去，钞票清分机仅用于银行等大型商业机构,因此其体积大小并无影响。然而，随着越来越多的商店和公司也频频收到假币，对于能够保护其利益的小尺寸钞票清分机的需求则变得尤为迫切。

解决方案

研华ROM-7420是一款采用ARM技术的经济高效型模块化电脑。丰富的I/O和卓越的系统性能可以保证钞票识别设备的正常运行，然后顺利将钞票按照国家或者面值进行分类。高级图形引擎可通过验钞机设计者开发的图形分析程序来辨别假钞。

开发套件用于原型

研华提供ROM-7420开发套件，以期能够以简单、快速的方式进行性能评估。该开发套件包含客户所需的所有项，例如，COM模块及相应载板、12V AC/DC电源适配器、连接外围设备的线缆、以及用于显示屏和触摸面板开发的LED面板。

研华设计协助服务

在开发过程中, 如果发生致命性问题将可能导致发布日程受到严重影响。研华专业技术支持团队将为您排忧解难，助您完成软硬件调试。通过提供及时技术支持和上门服务， 客户可以快速解决所有问题并使项目重新走上正轨。

ROM-7420
- Qseven 1.2模块化电脑
- NXP i.MX6 plus双/四核1GHz
- DDR3 1 GB/2 GB; 4 GB e.MMC闪存
- 丰富I/O，用于设备控制
- 7年长供货周期

IDK-1107
- 7 inch高亮度LED
- 4线电阻式触摸屏
- 可靠触摸屏组装
- 标准两年质保

坚固型RTX规格解决方案专为铁路监控系统而打造

中国铁路系统具有良好的便利性和广泛的经济效益，近年来发展势头非常迅猛。目前，铁路系统已成为主要公共交通系统之一，每天运载数百万乘客。然而， 找到一款适用于火车并包含数据收集、处理和存储的总体解决方案仍然非常必要。另外，如何保障数据/网络的安全性和可靠性也向我们提出了重大挑战。

解决方案

研华ROM-3420是RTX 2.0规格的超低功耗模块化电脑，专为具有抗振、抗氧化和抗腐蚀特性的坚固应用而设计。该产品不仅可为铁路监控系统提供可靠的核心计算能力和稳定的网络连接，而且还可通过研华内置软件API有效保证数据流的安全。工业级总体解决方案与SSD、WiFi 2.4GHz模块等研华外设一起，成功为铁路监控系统中的数据采集、处理和管理提供有力保障，而且提升了系统日常运作的平稳性与性能可靠性。

坚固耐用，支持宽温工作

研华ROM-3420 RTX模块设有4个强固型B2B接口、用于数据采集的SATA接口，并支持宽温工作；对于那些需在恶劣环境地区中连续运行的铁路系统而言，其稳定性需求能够得到可靠保障。

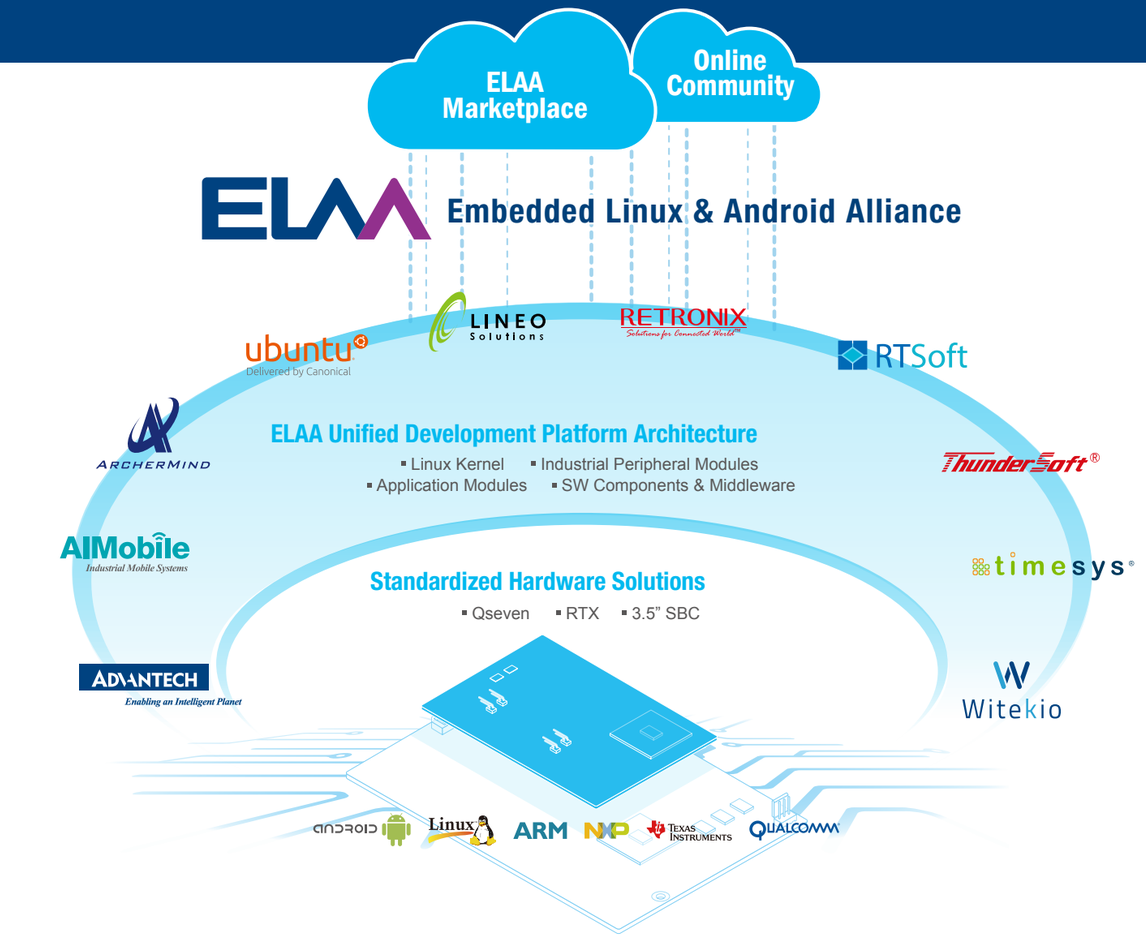
ROM-3420
- Freescale ARM Cortex™-A9 i.MX6 Dual 1 GHz高性能处理器
- 板载DDR3 1 GB内存 / 4GB flash
- 支持宽范围电源输入 5V~24V

载板解决方案服务

研华通过提供载板参考原理图、设计指南与检查表来加速载板开发，以便扩展模块的可用性。除了文档以外，我们还分享包含收发器和发射器IC推荐选项在内的设计参考。客户完成载板原理图后，研华将帮助客户进行审查并调试系统，并将提出生产建议帮助客户产品快速上市。

Unified Platform for Embedded Linux & Android Industrial Applications

Embedded Linux & Android Alliance (ELAA) is an industry alliance committed to driving the unification and board adoption of an open architecture standard for embedded Linux and Android cores in industrial embedded systems.



ELAA Features

Unified Architecture

The ELAA Unified Development Platform provides a unified hardware and software architecture across different industrial embedded applications. Users can leverage resources from one project to another with minimized learning curves and effort.

Longevity Support

Provide hardware platform, kernel and firmware upgrades to members and customers during the whole SoC life cycle.

Peripheral Integrated

ELAA Unified Development Platform integrates multiple industrial peripherals verified on different OS and hardware platforms.

Extensive Software Offerings

Empowered by alliance members, ELAA provides extensive software offerings throughout various kinds of OS, kernels, drivers and industrial applications.

Faster Time-to-market

Pre-integrated hardware and software platform to accelerate the POC to MP cycle.

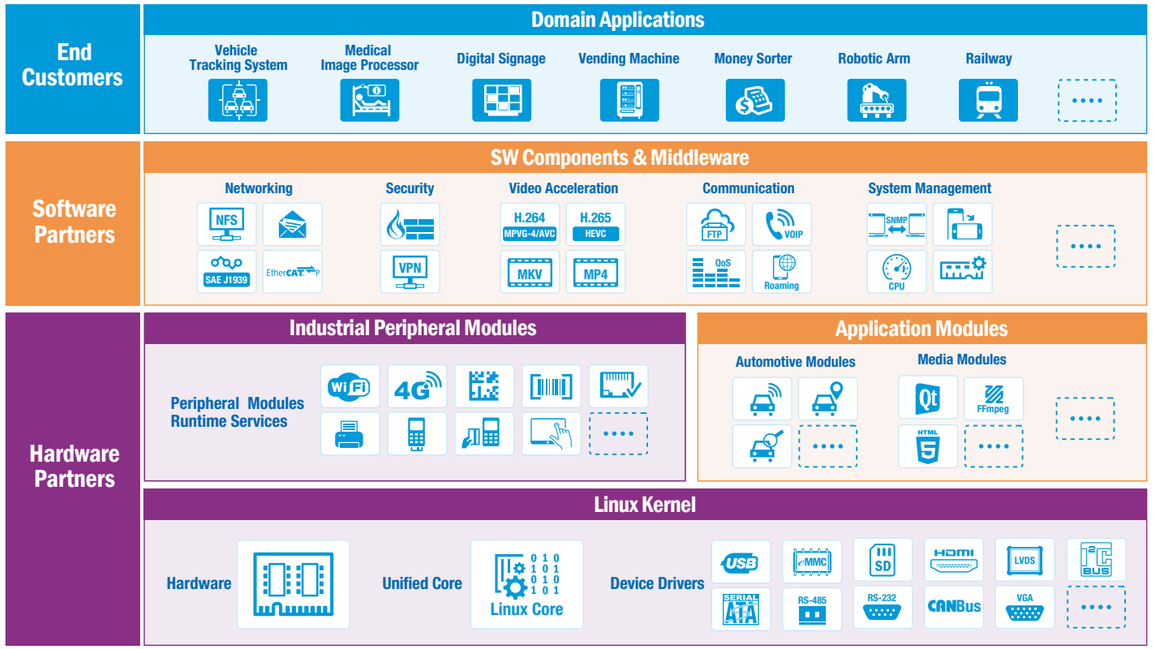
Global Partner Eco-system

Partners across the supply chain and geo-regions support customers' business development and expansion.

ELAA Unified Development Platform

ELAA defines a sharing and reusable platform with a standardized reference architecture. ELAA members build and integrate compliant boards and software components for embedded Linux and Android systems, and add further differentiating features to meet various industrial applications.

ELAA Unified Development Platform Architecture



Linux Kernel

ELAA provides a modularized and verified Linux Kernel for all members, with optimized performance and minimized core size, it is highly reliable and has numerous embedded I/O integrated.

Industrial Peripheral Modules

ELAA provides the most popular industrial I/O and modules for the ELAA platform, such as CANbus, RS422/485, touch screens, GPS, and WIFI & 4G connectivity. These industrial modules are well integrated and verified with the ELAA Linux kernel. Users can directly integrate these modules into their selected platforms without wasting development resources on peripheral integration.

Application Modules

Abundant industrial OS level software services are offered by ELAA global software partners, services such as LinuxLink from Timesys, Warp from Lineo and Qt, GPS location tracking, video streaming and more. ELAA software partners are able to provide a "just-intime" professional local software service based on ELAA Unified Linux Kernel and selected industrial peripherals.

Software Component & Middleware

An application oriented software package is defined by ELAA members for quick development support for different embedded applications, such as video, networking, and security. With this software middleware package, users can take advantage of support from ELAA global software partners and obtain technical support. This modularized framework makes embedded application development more efficient and speeds up the adoption of ARM-based platforms in the embedded market by moving the business model from in-house design to global cooperation based on modularized and pre-verified building blocks.

Domain Applications

Using the ELAA Unified Development Platform offers a more time and cost efficient approach toward developing high quality ARM-based embedded applications. The concept is like using LEGO building blocks. With various verified hardware and software building blocks and technical support from ELAA software partners, customers can focus on developing their high value-added embedded applications on ARM-based platforms by efficiently reusing field proven Linux kernels, industrial peripherals, and software modules.

ROM-1210

Freescale ARM Cortex-A8 i.MX53 RTX Module

Features

- Freescale ARM Cortex-A8 i.MX53 800 MHz high performance processor
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- Supports full HD 1080p video decode and HD 720p video encode hardware engine
- Freescale Smart Speed Technology supports low power consumption
- Industrial design with 3.3V I/O voltage and wide range working temperature
- Rich I/O for high expansion capability
- Supports SATA storage interface and CAN-bus for vehicle applications
- Supports Embedded Linux 2.6, Windows® Embedded Compact 7

Introduction

Industrial Design, I/O Intensive COM

ROM-1210 Computer-on-Module (COM) integrates an ARM Cortex-A8 800MHz Freescale i.MX53 series ultra low power SoC and I/O solution chips to be Windows® Embedded Compact 7, and Linux solution-ready! Freescale 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:

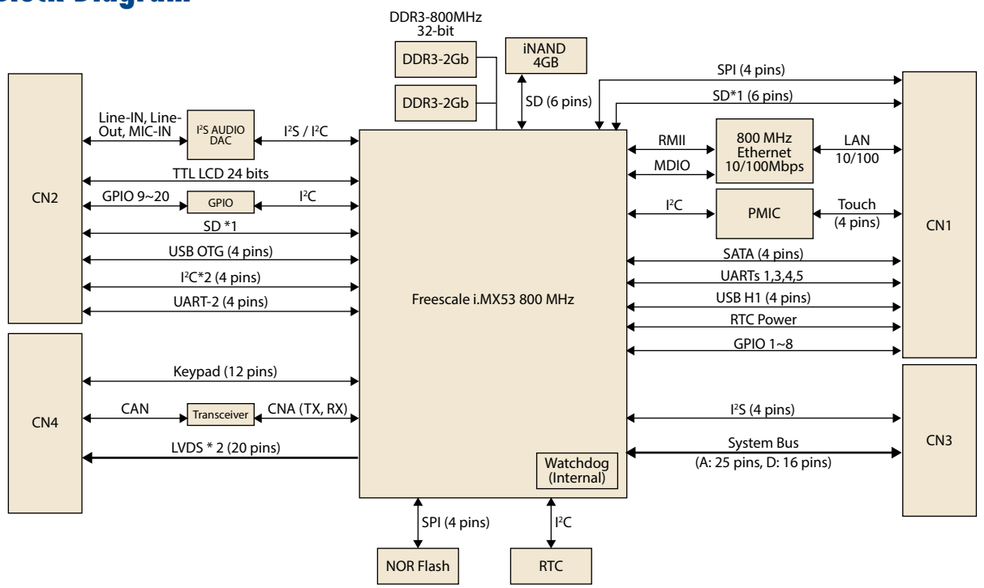
Reference Kit: Including Advantech reference Customer Solution Board (CSB) and all documentation for CSB design and manufacture (e.g. : Schematics, and pin definition file).

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	Freescale 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 x 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
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX5 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	1 x CAN bus 2.0B
	GPIO	20
	I²C	2
	Camera Input	-
	System Bus	Address:25 bits, Data:16 bits
	Touch	1
	Keypad	6 x 6 Matrix
Power	Power Supply Voltage	3.3 ~ 3.6 V
	Power Consumption	2.2W
Environment	Operational 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

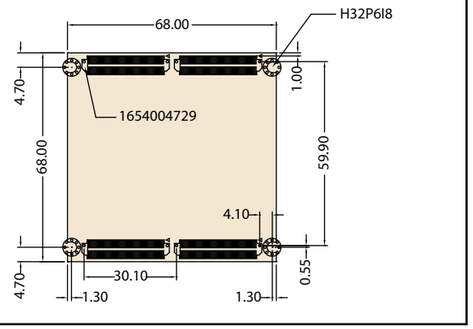


Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	SATA	SD	CANBus	I²C	SPI	Size	Power Input	Operating Temperature
ROM-1210CF-A78AAE	Freescale i.MX536 800 MHz	512 MB	2 GB	5	1	1	1	1 x 24-bit LVDS	Yes	2	1	2	1	68 x 68 x 7.5 mm	3.3 V & 3.6 V +-5%	0 ~ 60° C
ROM-1210WF-A78AAE	Freescale i.MX536 800 MHz	512 MB	2 GB	5	1	1	1	1 x 24-bit LVDS	Yes	2	1	2	1	68 x 68 x 7.5 mm	3.3 V & 3.6 V +-5%	-40 ~ 85° C

Dimensions

Unit: mm



Design-in Package

Part No.	Description
ROM-1210DK-B00E	Evaluation kit for ROM-1210
Power cord	1700001524 for 3-pin USA standard power cord
	170203183C for 3-pin Europe standard power cord
	170203180A for 3-pin UK standard power cord

ROM-7510

TI Sitara™ AM5728 Cortex -A15 1.5GHz Qseven Module

Features

- TI Sitara AM5728 Dual core cortex-A15 1.5GHz high performance processor
- Onboard DDR3 memory 2 GB and eMMC Flash 8 GB
- Support 1 LVDS, 1 HDMI, 1 USB2.0 OTG, 4 USB2.0 HOST, 1 USB3.0, 2 UART, 1 CAN, 1 SATA, 2 I²C, 1 I²S, 2 PCIE 1 lane,
- Operating temperature 0 ~ 60 °C / -40 ~ 85 °C
- Low power consumption, fanless design
- Supports Linux BSP

Introduction

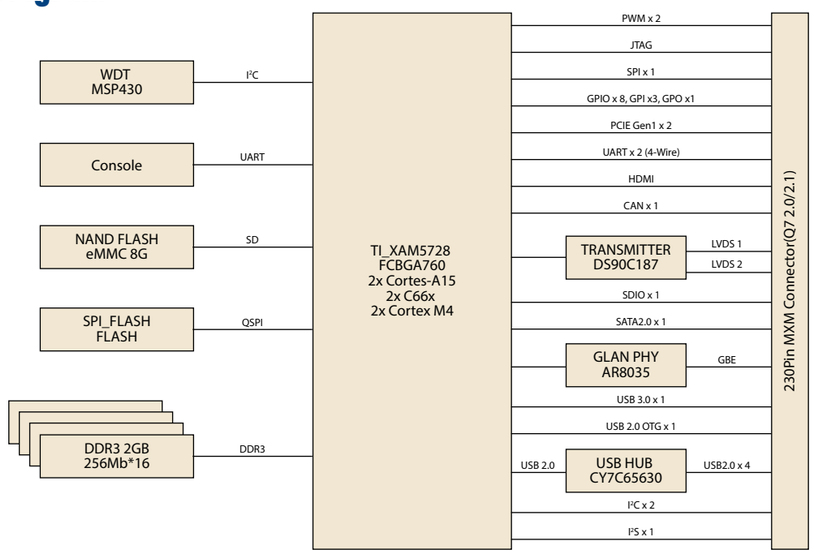
ROM-7510 Qseven Module integrates ARM Cortex-A15 TI AM5728 high performance SoC and I/O solution chips to be Linux support ready. TI AM5728 is provided by dual-core ARM Cortex-A15 RISC CPUs with Neon™ extension, and two TI C66x VLIW loating-point DSP cores. The ARM allows developers to keep control functions separate from other algorithms programmed on the DSPs and coprocessors, thus reducing the complexity of the system software.

ROM-7510 has Advantech ROM-DB7502 Evaluation Carrier Board for easy integration and design reference; we also offer referenced schematics and layout checklists for carrier board development. Additionally, Linux BSP, test utilities, HW design utilities and reference codes are ready for application development and device integration.

Specifications

Form Factor		Qseven
Processor System	CPU	TI ARM Cortex-A15 Sitara AM5728 1.5GHz
Memory	Technology	DDR3 on board 1066MHz
	Capacity	2GB
	Flash	8GB eMMC NAND Flash for O.S & 4MB SPI NOR Flash for ADV loader
Graphics	LVDS	1 x Dual channel 24-bit LVDS, 1920 x 1200
	HDMI	1
	Parallel RGB	-
	Graphics Engine	2 IPUs, Vivante™ GC320 for 2D, PowerVR® SGX544 for 3D
Ethernet	Chipset	TI AM5728 Integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		MSP430 (time out : 0.1~6553.5s, power on/off 4s)
I/O	USB	1 x USB3.0, 1 x USB 2.0 OTG, 4 x USB2.0 Host
	I²S	1
	SDIO	1
	UART	2 x UART w/ 4wires
	SPI	1
	CAN	1
	GPIO	8
	I²C	2
	SATA	1
	PCIE	2, 1-lane
	PWM	2
Power	Power Supply Voltage	5V DC, AT/ATX
	Power Consumption	TBD
Environment	Operating Temperature	0 ~ 60 °C/ -40 ~ 85 °C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	70 x 70 mm
Operating System	Linux	Kernel 4.4.19
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

Part Number	CPU	Memory	Flash	Parallel RGB	LAN	GPIO	USB 3.0	USB 2.0	I²C	I²S	SDIO	SPI	UART	CAN	Operating Temperature
ROM-7510CD-PEA1E	TI Sitara AM5728	2GB	8GB	-	1	8	1	5	2	1	1	1	2	1	0 ~ 60 °C
ROM-7510WD-PEA1E	TI Sitara AM5728	2GB	8GB	-	1	8	1	5	2	1	1	1	2	1	-40 ~ 85 °C

Development Board

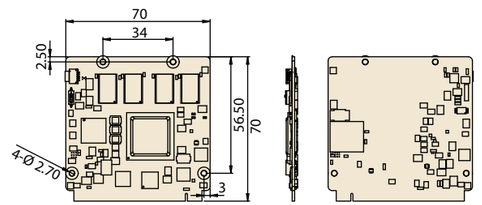
Part No.	Description
ROM-DB7502-SCA1E	Development Board for Qseven 2.0/2.1 Module

Optional Accessories

Part Number	Description
9696ED2000E	Debug adapter board
1700022373-01	Debug port cable for ROM-3420/5420/3310
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700008921	Power Cord 3P PSE 183cm
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85 °C)

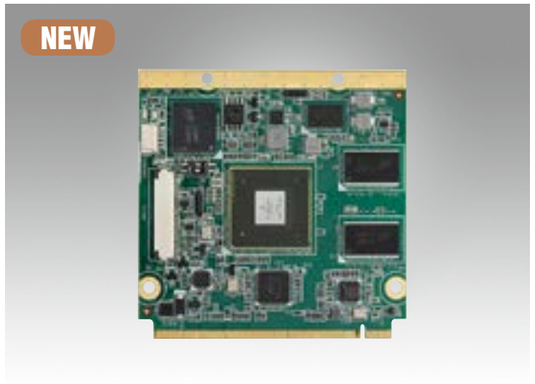
Dimensions

Unit: mm



ROM-7421

NXP ARM Cortex-A9 i.MX6 Qseven 2.0 Module



Features

- NXP ARM Cortex-A9 i.MX6 Dual Plus 1 GHz high performance processor
- Onboard DDR3 memory 1 GB
- Onboard eMMC NAND Flash 4 GB
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators, full HD 1080p video codec
- HDMI, Dual Channel 24bit LVDS
- 1 CAN, 2 UART, 2 I²C, 8 GPIO, 1 I²S
- 4 USB, 1 SDIO, 1 SATA II
- 1 10/100/1000 Mbps Ethernet; 1 PCIe x1 Gen2
- Optional thermal solution

Introduction

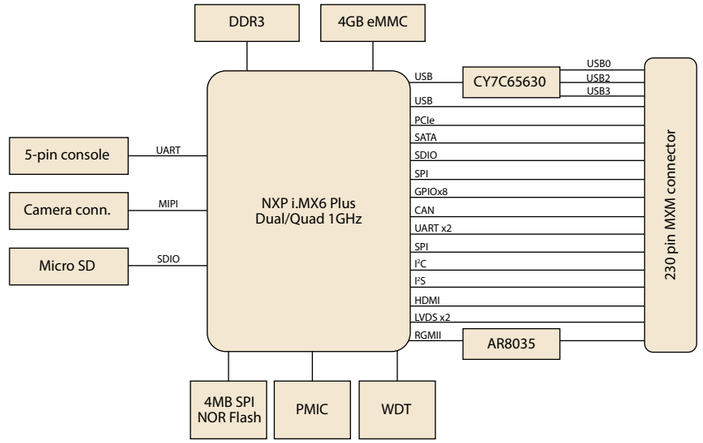
ROM-7421 Qseven Module integrates ARM Cortex-A9 NXP i.MX6 series ultra low power SoC and I/O solution chips to be Linux support ready. NXP i.MX6 supports 2D, 3D graphics acceleration, full HD 1080P video decoding and an HD 1080p video encoding hardware engine.

ROM-7421 has Advantech ROM-DB7501 Evaluation Carrier Board for easy integration and design reference; we also offer referenced schematics and layout checklists for carrier board development. Additionally, Linux BSP, test utilities, HW design utilities and reference codes are ready for application development and device integration.

Specifications

Form Factor		Qseven 2.0
Processor System	CPU	NXP ARM Cortex-A9 i.MX6 Dual Plus 1 GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	2 x 24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch
	HDMI	1920 x 1080
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	NXP i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		HW Watchdog Timer
I/O (Edge finger)	PCIe	1 PCIe, 1 x Lane
	SATA	1 SATA II
	USB	4 USB 2.0 (1 USB OTG)
	Audio	I²S
	SPDIF	-
	SDIO	1
	Serial Port	2 UART (4 wire)
	SPI	1
	CAN	1
	GPIO	8
	I²C	2
	System Bus	-
	Touch	-
	Keypad	-
I/O (On board)	UART	1 (for console)
	SD	1 microSD
	Camera	1 MIPI Video Capture Port
Power	Power Supply Voltage	5 V
	Power Consumption	4.4 Watts (Max)
Environment	Operational Temperature	0 ~ 60° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	70 x 70 mm
Operating System		Linux Kernel v3.14.52
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

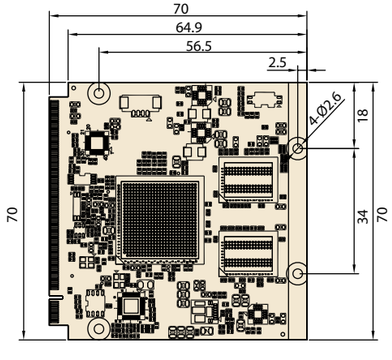
Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	SATA	PCIe	HDMI	SD	CANbus	I²C	SPI	Size	Power Input	Operating Temperature
ROM-7421CE-MDA1E	i.MX6 Dual 1 GHz	1 GB	4 GB	2	1	4	1	2 x 24-bit LVDS	1	1	1	1	1	2	1	70 x 70 x 5mm	5V	0 ~ 60° C
ROM-7421CU-MEA1E	i.MX6 Quad 1 GHz	2 GB	4 GB	2	1	4	1	2 x 24-bit LVDS	1	1	1	1	1	2	1	70 x 70 x 5mm	5V	0 ~ 60° C

Development Board

Part No.	Description
ROM-DB7501-SCA1E	Development board for RISC Qseven 2.0 module

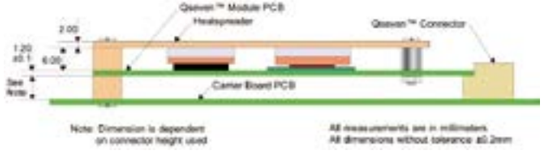
Dimensions

Unit: mm



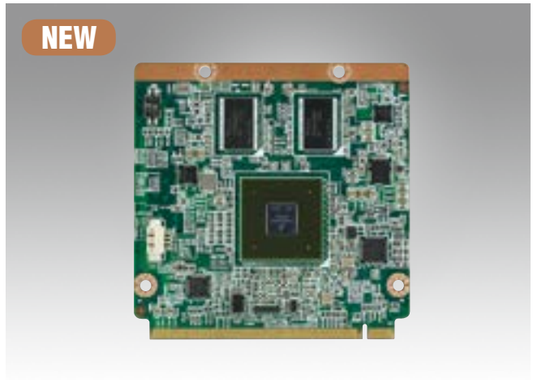
Optional Accessories

Part No.	Description
1700022373-01	Debug Port Cable for ROM-7421
9696ED2000E	Debug Port Adapter for ROM-7421
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700008921	Power Cord 3P PSE 183cm
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
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)
968EMW0093	Telit HE910-D Mini PCIE
1750007156-01	Cellular/GPS SMA Short JACK(9.5MM) L=100mm (3G Cable)
1750005865	Antenna L=10.9cm 50Ohm AN8921F-5701SM (3G Antenna)
1960061913N001	Heatsink O-Freescale-S-5W 70x63x8-SC ROM-7420-60



ROM-7420

Freescale ARM Cortex-A9 i.MX6 Qseven Module



Features

- Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz high performance processor
- Onboard DDR3 memory 1 GB
- Onboard eMMC NAND Flash 4 GB
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators, full HD 1080p video codec
- VGA, HDMI, 24-bit LVDS
- 2 CAN, 4 UART, 3 I²C, 8 GPIO
- 2 USB, 1 SD/MMC, 1 SATA II
- 1 10/100/1000 Mbps Ethernet; 1 PCIe x1 Gen2
- Optional thermal solution

Introduction

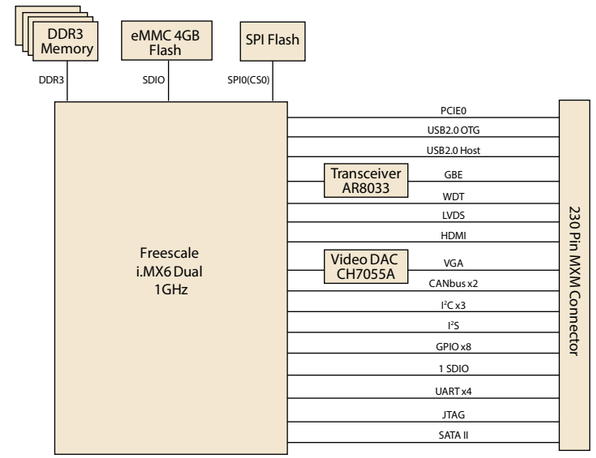
ROM-7420 Qseven Module integrates ARM Cortex-A9 Freescale i.MX6 series ultra low power SoC and I/O solution chips to be Linux support ready. Freescale i.MX6 supports 2D, 3D graphics acceleration, full HD 1080P video decoding and an HD 1080p video encoding hardware engine.

ROM-7420 has Advantech ROM-DB7500 Evaluation Carrier Board for easy integration and design reference; we also offer referenced schematics and layout checklists for carrier board development. Additionally, Linux BSP, test utilities, HW design utilities and reference codes are ready for application development and device integration.

Specifications

Form Factor		Qseven
Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	2 x 24-bit LVDS, 1366 x 768 for 1ch; 1920 x 1080 for 2ch
	HDMI	1920 x 1080
	Parallel RGB	-
	VGA	1920 x 1080
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		256-level timer interval, from 0 ~ 128 sec
I/O	PCIe	1 PCIe, 1 x Lane
	SATA	1 SATA II
	USB	1 USB 2.0, 1 USB 2.0 OTG
	Audio	I²S
	SPDIF	-
	SDIO	1
	Serial Port	4 UART (4 x 2 wire, w/ 3.3V)
	SPI	1
	CAN	2 x CAN bus 2.0B
	GPIO	8
	I²C	3
	Camera Input	-
	System Bus	-
	Touch	-
	Keypad	-
Power	Power Supply Voltage	5 V
	Power Consumption	3.16W (Max. load)
Environment	Operational Temperature	0 ~ 60° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	70 x 70 mm
Operating System		Linux Kernel v3.0.35
Certifications		CE/FCC Class B

Board Diagram



Ordering Information

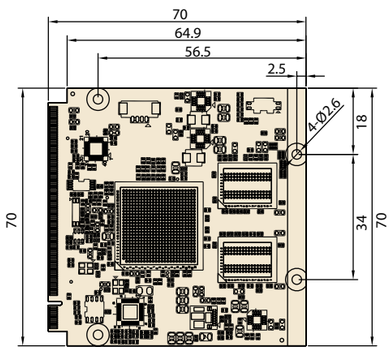
Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	SATA	PCIe	HDMI	SD	CANbus	I²C	SPI	Size	Power Input	Operating Temperature
ROM-7420CD-MDA1E	i.MX6 Dual 1 GHz	1 GB	4 GB	4	1	1	1	2 x 24-bit LVDS 1 x VGA	1	1	1	1	2	3	1	70 x 70 x 5mm	5V	0 ~ 60° C

Development Board

Part No.	Description
ROM-DB7500-SCA1E	Development board for RISC Q7 module

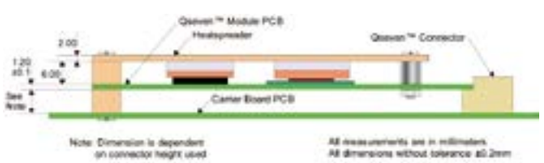
Dimensions

Unit: mm



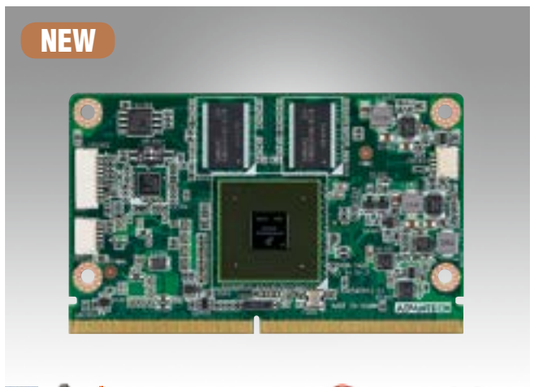
Optional Accessories

Part No.	Description
1700020442-01	Debug Port Cable for ROM-7420
9696ED2000E	Debug Port Adapter for ROM-7420
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
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 50Ohm AN8921F-5701SM (3G Antenna)
1960061913N001	Heatsink O-Freescale-S-5W 70x63x8-SC ROM-7420-60



ROM-5420

Freescale ARM Cortex-A9 i.MX6 SMARC v1.0 Module



Features

- Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz high performance processor
- Onbard DDR3 1 GB
- Parallel RGB, HDMI, Single channel 18/24-bit LVDS, 1366 x 768
- Supports 4 GB eMMC Flash, 1 SD/MMC, 1 SATA
- 2 CAN, 4 UART, 5 I²C, 12 GPIO, 1 PCIe, 1 camera input and 1 Gigabit LAN
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- Supports full HD hardware encode/decode engine
- Supports image protection

Introduction

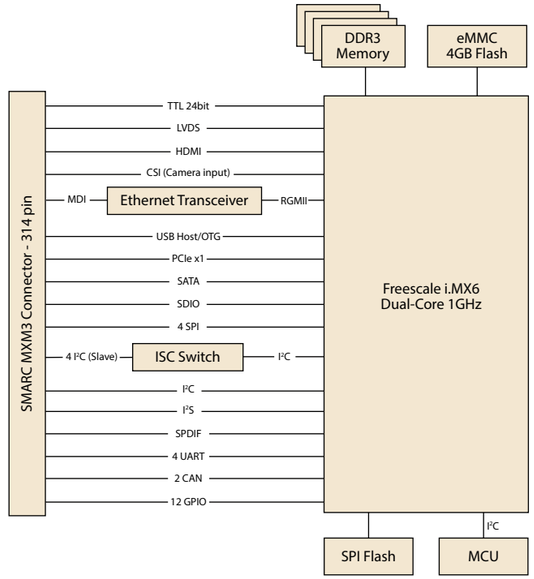
ROM-5420 series SMARC module has an integrated Freescale i.MX6 Cortex-A9 SoC. Freescale i.MX6 supports 2D/3D graphics accelerators, a full HD 1080p encode/decode hardware engine and two independent display ouputs. ROM-5420 series support security protection and it protects user image from plagiarism. The camera input and power input +3V~5.25V support are specially designed for portable applications.

ROM-5420 SMARC module has Advantech ROM-DB5900 evaluation carrier board for easy integration and hardware design reference, and also provides Linux BSP, a schematic check tool, test utilities and reference codes for application development and device integration.

Specifications

Form Factor		SMARC v1.0
Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 Single 18/24-bit LVDS, 1366 x 768
	HDMI	1920 x 1080
	Parallel RGB	1 24-bit TTL, 2048 x 1536
	VGA	-
	Graphics Engine	3 GPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		S/W WDT, 256-level timer interval from 0 ~ 128 sec
I/O	PCIe	1 PCIe, 1 x Lane
	SATA	1 SATA II
	USB	1 USB 2.0, 1 USB 2.0 OTG
	Audio	I²S
	SPDIF	1
	SDIO	1
	Serial Port	4 UART (2 x 2 wire, 2 x 4 wire w/ 3.3V)
	SPI	4
	CAN	2 x CAN bus 2.0B
	GPIO	12
	I²C	5
	Camera Input	1 MIPI v1.0, 4x Lane
	System Bus	-
	Touch	-
	Keypad	-
Power	Power Supply Voltage	+3 ~ 5.25 V
	Power Consumption	Kernel idle: 1.25 W/ Maximum: 3.4W
Environment	Operational Temperature	0 ~ 60° C/ -40 ~ 85° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	82 x 50 mm
Operating System		Ltib Linux Kernel v3.0.35/Android v4.2.2
Certifications		CE/FCC Class B

Block Diagram

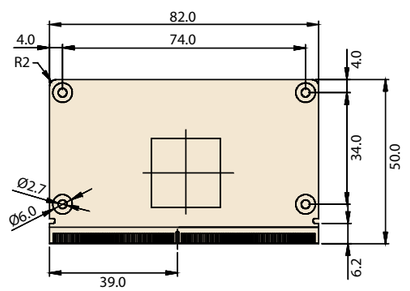


Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	SATA	PCIe	HDMI	SD	CANbus	I²C	SPI	Size	Power input	Operating Temperature
ROM-5420CD-MDA1E	i.mx6 Dual 1GHz	1 GB	4 GB	4	1	1	1	1x 24bit LVDS 1x 24bit TTL 1x HDMI	1	1	1	1	2	5	4	82 x 50 x 5 mm	3 ~ 5.25V	0 ~ 60° C
ROM-5420WD-MDA1E	i.mx6 Dual 1GHz	1 GB	4 GB	4	1	1	1	1x 24bit LVDS 1x 24bit TTL 1x HDMI	1	1	1	1	2	5	4	82 x 50 x 5 mm	3 ~ 5.25V	-40 ~ 85° C

Dimensions

Unit: mm



Development Board

Part No.	Description
ROM-DB5900-SWA1E	Developmemt Board for SMARC v1.0
ROM-DK5420-F0A1E	SMARC v1.0 EVK kit

Optional Accessories

Part No.	Description
1700022373-01	Debug port cable for ROM-3420/5420
9696ED2000E	Debug Adapter Board
1960063090N001	Heat spreader
1930005215	Scew for heat spreader
1960063089N001	Semi heat sink
1930004835	Scew for heat spreader and semi heat sink

ROM-3420

Freescale ARM Cortex-A9 i.MX6 RTX2.0 Module

Features

- Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz high performance processor
- Onboard DDR3 1 GB memory / 4 GB Flash
- Supports wide range power input 5V~24V
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- Supports full HD 1080p video decode and HD 1080p video encode hardware engine
- Supports 1 PCIe, 1 GbE, 1 USB 2.0, 1 USB OTG2.0, 1 SATAII, 4 I²C, 1 I²S, 1 Camera in, 2 CANbus, 10 GPIO, System bus
- Optional thermal solution

Introduction

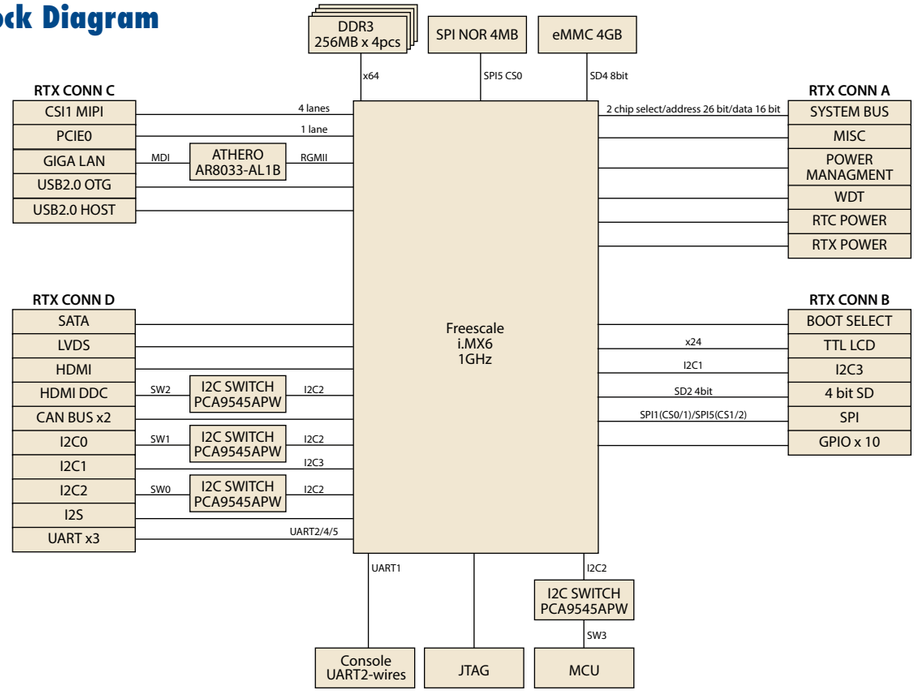
ROM-3420 RTX2.0 module integrates an ARM Cortex A9 Dual 1 GHz Freescale i.MX6 series ultra low power SoC and I/O solution chips to be Linux solution-ready! Freescale i.MX6 supports 2D, 3D graphics acceleration, full HD 1080P video decoding encoding hardware engine. ROM-3420 supports 5V~24V wide range power input and wide temperature design for industrial applications.

ROM-3420 RTX2.0 module has an Advantech ROM-DB3900 evaluation carrier board for easy integration and hardware design reference, and also provides Linux BSP utility and reference codes for application development and device integration.

Specifications

Form Factor		RTX2.0
Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual/Quad 1 GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 Single 18/24-bit LVDS, 1366 x768
	HDMI	1 HDMI, 1920 x1080
	Parallel RGB	1 24-bit TTL, 2048 x 1536
	VGA	-
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer		S/W WDT, 256-level timer interval from 0 ~ 128 sec
I/O	PCIe	1 PCIe, 1 x Lane
	SATA	1 SATA II
	USB	1 USB 2.0, 1 USB 2.0 OTG
	Audio	I²S
	SPDIF	-
	SDIO	1
	Serial Port	3 UART (3 x 4 wire w / 3.3V)
	SPI	2
	CAN	2 CAN bus 2.0B
	GPIO	10
	I²C	4
	Camera Input	1 MIPI V1.0 (x 4 Lane)
	System Bus	Address: 26 bits, Data: 16 bits
	Touch	-
	Keypad	-
Power	Power Supply Voltage	5 ~ 24 V
	Power Consumption	1.7W (Kernel idle mode) 3.3W (CPU max-loading) 6.1w (Max mode, OpenGL open)
Environment	Operational 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		Ltib Linux Kernel v3.0.35/Android v4.3
Certifications		CE/FCC Class B

Block Diagram

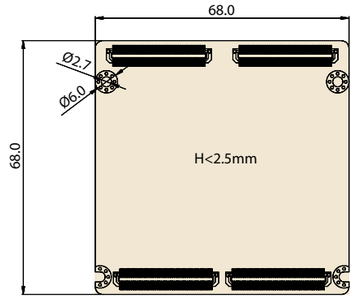


Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	USB OTG	Display	SATA	PCIe	HDMI	SD	CANbus	I²C	SPI	Size	Power input	Operating Temperature
ROM-3420CD-MDA1E	i.MX6 Dual 1GHz	1 GB	4 GB	3	1	1	1	1 x 24bit LVDS 1 x 24bit TTL 1 x HDMI	1	1	1	1	2	4	2	68 x 68 x 7 mm	5 V ~ 24 V	0 ~ 60° C
ROM-3420WD-MDA1E	i.MX6 Dual 1GHz	1 GB	4 GB	3	1	1	1	1 x 24bit LVDS 1 x 24bit TTL 1 x HDMI	1	1	1	1	2	4	2	68 x 68 x 7 mm	5 V ~ 24 V	-40 ~ 85° C

Dimensions

Unit: mm



Development Board

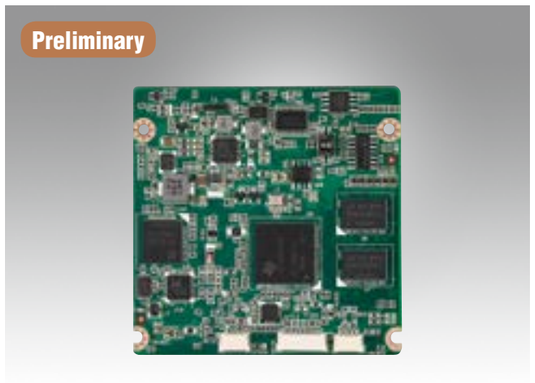
Part No.	Description
ROM-DB3900-SWA1E	Development board for RTX2.0 module
ROM-DK3420-F0A1E	RTX v2.0 EVK kit

Optional Accessories

Part No.	Description
1700022373-01	Debug port cable for ROM-3420/5420
9696ED2000E	Debug Adapter Board
1960065189N001	Semi-Heatsink for ROM-3420
1930004835	Screw for Heatsink

ROM-3310

TI AM3352 Cortex A8 1GHz RTX2.0 Module



Features

- TI Sitara Cortex A8 AM3352 1Ghz high performance processor
- On board DDR3 512MB memory / 4GB Flash
- Support wide range power input 5V~24V
- Option thermal solution 0 ~ 60° C/ -40 ~ 85° C
- Support Linux kernel v3.2.0

Introduction

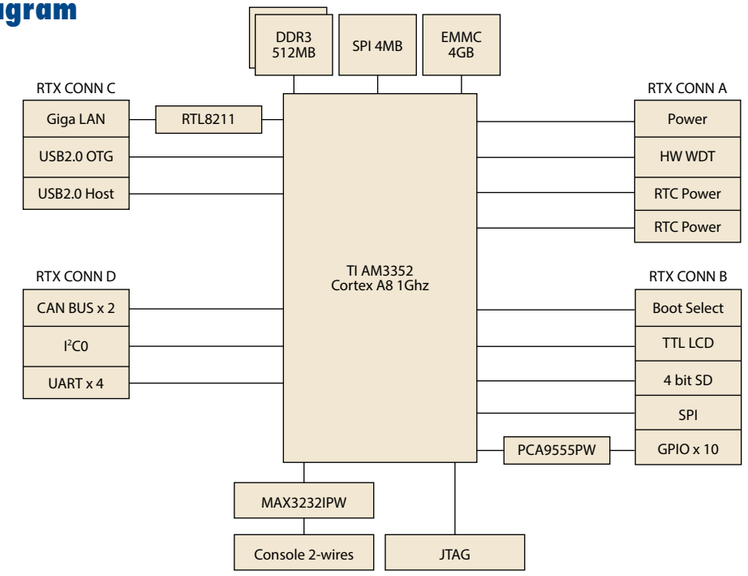
ROM-3310 RTX2.0 module integrates an ARM Cortex A8 single core 1 GHz TI AM3352 series ultra low power SoC and I/O solution chips to be Linux solution-ready! TI AM3352 supports multi-serial port on market of data collection. ROM-3310 supports 5V~24V wide range power input and wide temperature -40 ~ 85° C design for data collection on industrial applications. Base on the thickness of 2.0mm, make it become enough strong and gold finger design also makes the PIN is not easy to oxidation.

ROM-3310 RTX2.0 module has an Advantech ROM-DB3900 evaluation carrier board for easy integration and hardware design reference and also provides Linux BSP utility and reference codes for application development and device integration.

Specifications

Form Factor		RTX 2.0
Processor System	CPU	TI Sitara Cortex A8 AM3352 1Ghz
Memory	Technology	DDR3 on board 800MHz
	Capacity	512MB
	Flash	4GB EMMC NAND Flash for O.S & 4MB SPI NOR Flash for ADV Loader
Graphics	Parallel RGB	Support VGA interface
Ethernet	Transceiver	TI AM3352 Integrated RGMII
	Speed	1 x 10/100/1000 Mbps
RTC	RTC	1
WatchDog Timer		MSP430G2202 (time out : 0.1~6553.5s, power on/off 4s)
I/O	USB	1 x USB 2.0 host & 1 x USB2.0 OTG
	I²S	1
	SDIO	1
	Serial Port	1 x 4wire & 4 x 2wire 3.3V
	SPI	1 x SPI
	CAN	2 x CAN Bus 2.0B
	GPIO	10
	I²C	1
Power	Power Supply Voltage	5 ~ 24 V
	Power Consumption	TBD
Environment	Operational Temperature	0 ~ 60° C/ -40 ~ 85° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	68 x 68 x 2 mm
Operating System		Linux Kernel v3.2.0
Certifications		CE/FCC Class B

Block Diagram

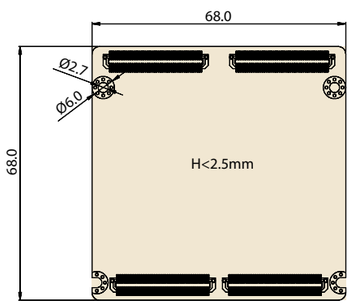


Ordering Information

Part Number	CPU	Memory	Flash	Parallel RGB	LAN	GPIO	USB Host	USB OTG	I²C	I²S	SD	SPI	UART	CAN	Operatiing Temperature
ROM-3310WS-MCA1E	TI Sitara AM 3352 Cotex A8 1GHz	512MB	4GB	1	1	10	1	1	1	1	1	1	5	2	-40 ~ 85° C
ROM-3310CS-MCA1E	TI Sitara AM 3352 Cotex A8 1GHz	512MB	4GB	1	1	10	1	1	1	1	1	1	5	2	0 ~ 60° C

Dimensions

Unit: mm



Development Board

Part No.	Description
ROM-DB3900-SWA1E	Development board for RTX2.0 module

Optional Accessories

Part Number	Description
1757002943	ADAPTER 100-240V 65W 19V 3.42A W/O P 9NA0651217
9696MEG700E	ROM-EG70 A101 ASS'Y SPI/I2C Board For ROM-DB5900
9696MEG520E	ROM-EG52 A101 ASS'Y CODEC Board for ROM-3900
1700019077	M Cable USB-A(M)/M-USB(M) 150cm OTG Device
1700019076	M Cable USB-A(F)/M-USB(M) 10cm OTG Host
SQF-ISDS1-4G-82C	SQF SD C6 SLC 4G, 1CH
1700001524	Power Cord 3P UL 10A 125V 180cm
9696ED2000E	ASS'Y ROM-ED20 DB A101-1
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm

EPC-R6410

NXP i.MX6 Cortex-A9 RISC Edge Intelligence Server

Features

- NXP ARM Cortex-A9 i.MX6 Dual/Quad 1GHz high performance processor
- On board DDR3 1066MHz 1GB/2GB memory and 8GB EMMC NAND flash
- Supports Dual Display: VGA/HDMI
- Supports 1 x mini-PCIe, 4 x serial ports, 6 x USB, 1 x M.2 socket,8 x GPIO, 1 x CAN
- Low power consumption, fanless design
- Supports Linux and Android BSP

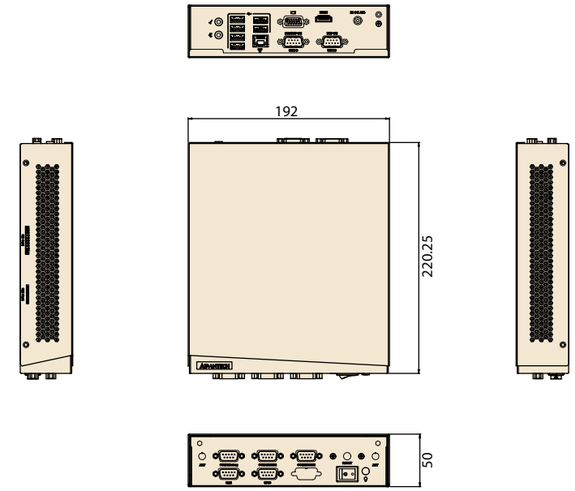
Introduction

Specifications

Form Factor		Edge Intelligence Server
Processor System	CPU	NXP ARM Cortex-A9 i.MX6 Dual/Quad 1GHz processor
	Capacity	1GB/2GB of onboard DDR3 at 1066 MHz
	Flash	8 GB of eMMC NAND Flash for OS and 4 MB of SPI NOR Flash for ADV loader
Ethernet	Transceiver	RTL 8211
	Speed	1 x 10/100/1000 Mbps
WatchDog Timer		C8051 (time out: 0.1~6553.5s, power on/off 4s)
I/O	USB	6 x USB2.0 host
	Serial	4 (3 of RS-232 w/ 4wire,1 of RS-232/422/485 w/ 4wire)
	CAN	1
	GPIO	8
	Button	1 x Reset button, 1 x Power button
Expansion	SD Socket	1 x SD slot
	Mini-PCIe	1 (USB signal only)
	M.2	1 (E-Key)
Power	Power Supply Voltage	12 V DC-in
	Power Type	DC-Jack
	Power Consumption	TBD
Environment	Operational Temperature	0 ~ 55 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	200 x 230 x 50 mm
Operating System	Android	V4.4.2, Kernel V3.0.35
	Linux	Yocto1.7, Kernel V3.14.28
Certifications		CE/FCC/CCC/BSMI Class B

Dimensions

Unit: mm



Ordering Information

Part Number	CPU	Memory	eMMC	SD	CAN	UART	GPIO	VGA	HDMI	USB Host	LAN	Operating Temperature
EPC-R6410CD-PAA1E	NXP i.MX6D	1GB	8GB	1	1	4	8	1	1	6	1	0 ~ 55 °C
EPC-R6410CQ-VAA1E	NXP i.MX6Q	2GB	8GB	1	1	4	8	1	1	6	1	0 ~ 55 °C

Packing List

Part Number	Description
96966410000/10	NXP i.MX6D/Q 1GHz computing board
1960074545N001	Wall mount

Optional Accessories

Part Number	Description
96PSA-A36W12R1	ADP A/D 100-240V 36W 12V
170203183C	Power cord 3P Europe (WS-010+WS-083) 183 cm
SQF-ISDS1-4G-82C	SQF SD C6 SLC 4G, 1CH
170203180A	Power cord 3P UK 2.5A/3A 250 V 1.83 M
1700001524	Power cord 3P UL 10A 125 V 180 cm
968AD00018	Wifi BT module AW-NB136NF
1750002842	Wireless Antenna R-AN2450-5701RS R/P SM
1750008500-01	ANT.SMA/F-R-BH IPEX/P NGFF L150mm
9680017201	Quectel 3G module UC20-G
9680017512	Qucetel EC20-CEFD Mini PCIe 4G module
1750008498-01	ANT.SMA/F-BH IPEX/P L200mm
1750008430-01	3G Dipole Antenna SMA(M) 2dBi 109mm

Front View

Rear View

RSB-6410

NXP ARM® Cortex®-A9 i.MX6 Dual/Quad Mini-ITX Motherboard

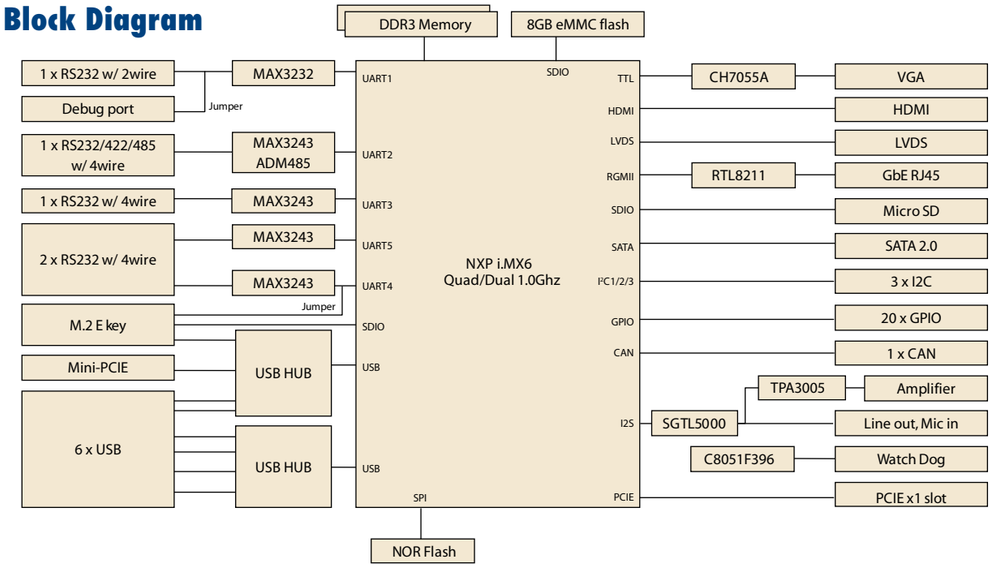
Features

- NXP ARM® Cortex®-A9 i.MX6 Dual/Quad 1GHz high performance processor
- On board DDR3 1066MHz 1GB/2GB memory and 8GB EMMC NAND flash
- Supports Triple Display: VGA/HDMI/LVDS
- Supports 1 x PCIe, 1 x mini-PCIe, 5 x serial ports, 6 x USB, 1 x M.2 socket, 20 x GPIO, 1 x CAN
- Low power consumption, fanless design
- Supports Linux and Android BSP

Specifications

Processor	CPU (40nm)	NXP i.MX 6D	NXP i.MX 6Q
	Core Number	2	4
	Max Speed	1.0 GHz	1.0 GHz
	L2 Cache	1MB	1MB
Expansion Slot	PCI	-	
	Mini-PCIe	1 (USB signal only)	
	PCIe	1	
Memory	Technology	Single channel DDR3 1066MHz SDRAM on board	
	Max. Capacity	1G	2G
	Flash	8GB EMMC NAND Flash for O.S & 4MB SPI NOR Flash for ADV loader	
Graphics	Controller	NXP i.MX6 integrated hardware accelerators	
	VGA	1920 x 1080	
	LVDS	1 x 24bit dual channel LVDS with up to 1920x1080 resolution, 2 x 24bit single channel LVDS with up to 1366x768 resolution (option)	
	HDMI	1920 x 1080	
	Triple Display	Extended Mode: HDMI + LVDS, VGA+HDMI, VGA+LVDS, VGA+HDMI+LVDS (by application) Clone Mode: HDMI + LVDS, VGA+HDMI, VGA+LVDS , 2 single channel LVDS	
Ethernet	Chipset	NXP i.MX6 integrated RMII	
	Speed	1x 10/100/1000 Mbps	
SATA	Max Data Transfer Rate	300 MB/s (SATA 2.0)	
	Channel	1	
EIDE	Mode	None	
	Channel	None	
SSD	CFast CompactFlash	-	
Rear I/O	CRT	1	
	HDMI	1	
	Ethernet	1	
	USB	6 (USB2.0 HOST)	
	Audio	1 Line out, 1 Mic, 1 Amplifier (6W)	
	Serial	2 (1 of RS-232 w/ 4wire,1 of RS-232/422/485 w/ 4wire)	
	KB/MS	-	
	DC jack	1 (2.5 mm)	
Internal Connector	LVDS & Inverter	1/1	
	eDP	-	
	USB	-	
	Serial	3 (2 x 4 wire RS232,1 x 2 wire RS232/debug port by jumper), only com5 supply 5V/12V	
	IDE	None	
	I²C	3	
	CAN	1	
	SATA	1 (SATA 2.0)	
	SATA PWR Connector	1	
	SD	1	
	Parallel	None	
	GPIO	18	
Watchdog Timer	Output	System reset	
	Interval	time out : 0.1~6553.5s, power on/off 4s	
Power	Power Type	Single voltage 12V DC input; 1 x External DC jack; 1 x Internal 4-pin (2x2) power connector; Supports AT/ATX mode	
	Typical Power Consumption	8W (system burning)	
Operating System	Android	V 4.4.2 , Kernel V3.0.35	
	Linux	Yocto1.7, Kernel V3.14.28	
Environment		Operating	Non-Operating
	Temperature	0 ~ 60 °C (32 ~ 140 °F)	-40 ~ 85 °C (-40 ~ 185 °F)
Physical Characteristics	Dimensions	170 mm x 170 mm (6.69" x 6.69")	

Block Diagram



Ordering Information

Part No.	CPU	Memory	eMMC	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB	SD	CAN bus	Operating Temperature
RSB-6410CD-PNA1E	i.MX6D	1G	8G	1	1	1	1	4xRS232, 1xRS422/485/232	1	6	1	1	0 ~ 60 °C
RSB-6410CQ-VNA1E	i.MX6Q	2G	8G	1	1	1	1	4xRS232, 1xRS422/485/232	1	6	1	1	0 ~ 60 °C

Packing List

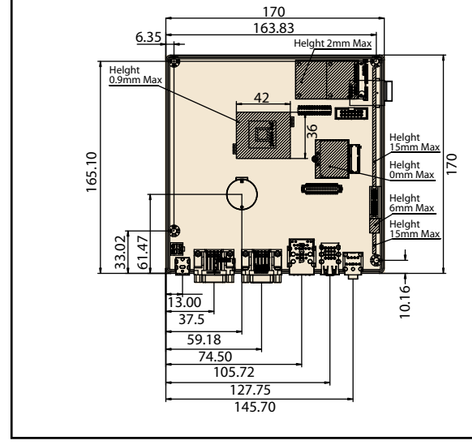
Part Number	Description	Quantity
9696R20001E/11E	RSB-6410 mother board	1
1700021565-11	Debug cable	1
1700025732-01	RS232 1-to-2 cable	1
1960074075T000	IO Port bracket	1

Optional Accessories

Port Number	Description	Quantity
96PSA-A36W12R1	A/D 100 ~ 240 V, 36 W, 12 V	1
1700001524	Power Cord 3P UL 10A 125 V 180 cm	1
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83cm	1
170203183C	Power Cord 3P Europe 183cm	1
1700026610-01	GPIO cable,A cable D-SUB 9P(F)/2*11P-2.0 20CM	1
1700023575-01	Can cable, A cable D-SUB 9P(M)/1*4P-2.0 20cm	1
IDK-1107WR-40WVA1E	7" LED PANEL 2.5A/3A 250V 1.83cm400N with 4WR touch, 800 x 480 (G)	1
1700025779-01	LVDS cable for IDK-1107WR	1
1700025767-01	LCD blacklight cable for IDK-1107WR	1
SQF-ISDS1-4G-82C	SQFlash SD card 4G	1
Y5AGF16002	Wifi BT module AW-CB178NF-S	1
1750002842	Wireless Antenna R-AN2450-5701RS R/P SM	1
1750008500-01	ANT.SMA/F-R-BH IPEX/P NGFF L150mm	1
9680017201	Quectel 3G module UC20-G	1
1750008498-01	ANT.SMA/F-BH IPEX/P L200mm	1
1750008430-01	3G Dipole Antenna SMA(M) 2dBi 109mm	1
PCIE-1602C	2-Port RS232/422/485 PCIE card	1
96NIC-1G-PE-IN	INTEL NIC 10/100/1000M PCIEx1 DESKTOP(G) 82574	1

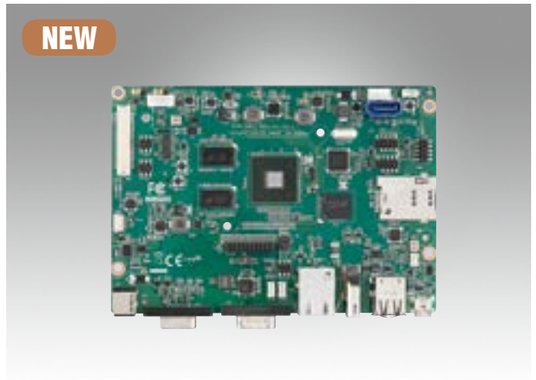
Dimensions

Unit: mm



RSB-4411

NXP ARM® Cortex®-A9 i.MX6 3.5" SBC



Features

- NXP ARM® Cortex®-A9 i.MX6 Dual/Quad up to 1 GHz
- Onboard 1GB DDR3 memory and 4GB eMMC
- HDMI and VGA 1920x1080 at 60Hz, Dual Channel 18/24 bit LVDS
- 3 UART, 1 GbE, 5 USB 2.0, 20 GPIO, 2 I2C, 1 SPI
- M.2 for WIFI/BT support , mini-PCIe for WIFI/3G support
- Low power consumption, fanless design
- Supports Linux and Android

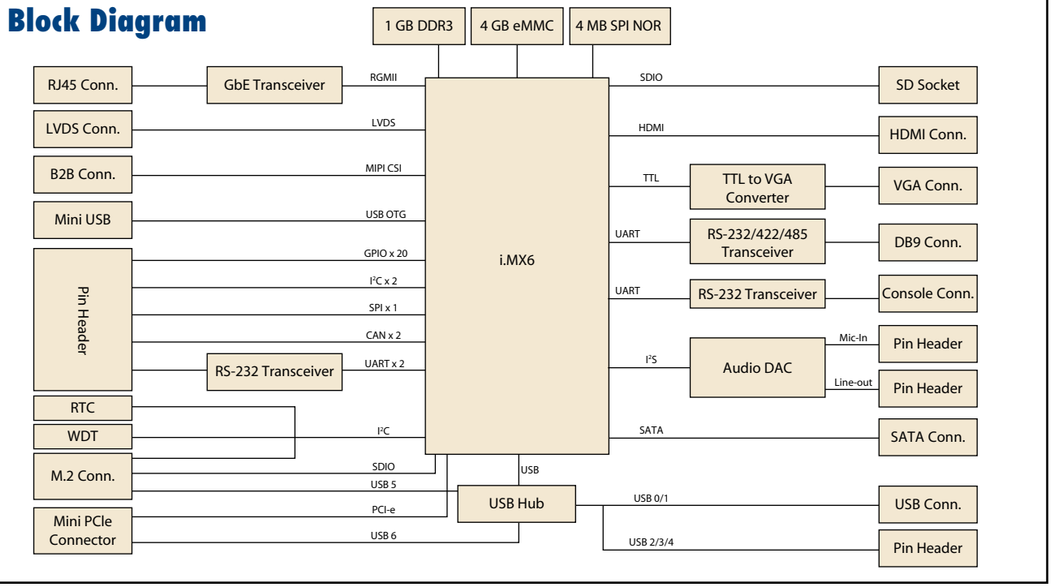
Introduction

RSB-4411 is a RISC 3.5" single board computer (SBC) powered by a high-performance NXP ARM® Cortex®-A9 i.MX6 processor that supports full HD video encoding/decoding and Gigabit Ethernet networking. RSB-4411 also features mini PCIe, M.2, and SIM card slots for integrating Wi-Fi, Bluetooth, and 3G/4G/LTE modules. Equipped with complete Linux and Android BSPs, this system enables customers to easily develop unique application software for specific OS.

Specifications

Form Factor		3.5" SBC
Processor System	CPU	NXP ARM® Cortex®-A9 i.MX6 Dual/Quad-core up to 1.0 GHz processor
	Technology	DDR3 1066 MHz
	Capacity	1 GB of DDR3 onboard
	Flash	4 GB of eMMC NAND Flash for OS and 4 MB of SPI NOR Flash for Advantech's boot loader
Graphics	LVDS	1 x 18/24-bit LVDS with 1366 x 768 resolution for 1 channel; 1920 x 1080 resolution for 2 channels at 60Hz
	HDMI	1 HDMI, 1920 x 1080 at 60Hz
	VGA	1 VGA,1920 x 1080 at 60Hz
	Graphics Engine	3 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	NXP i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
WatchDog Timer		1~6553s, power on/off 4s
I/O	SATA	1
	SATA Power	1
	USB	1 x USB OTG, 2 x USB Type A, and 3 x USB pin headers
	Audio	1 x line-out, 1 x mic-in via a pin header
	SPDIF	-
	SDIO	-
	Serial Port	2 x 2-wire RS-232 pin header 1 x 4-wire RSB-232/422/485, DB9
	SPI	1
	CAN	2
	GPIO	20-pin 3.3V TTL level GPIOs
	I²C	2
	System Bus	-
	Touch	-
	I/R	-
	Button	-
Expansion	Mini PCIe	1 x mini PCIe slot
	SD Socket	1 x SD slot
	SIM Slot	1 x SIM slot
	M.2 Socket	1 x M.2 slot
Power	Power Supply Voltage	12 V, 19 V, 24 V
	Power Type	DC-in
	Power Consumption	-
Environment	Operating Temperature	0 ~ 60 °C/-40 ~ 85 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D)	146 x 102 x 20 mm
Operation System		Linux and Android
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

Part Number	CPU	Memory	Flash	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB Host	System Bus	SD	CAN Bus	Operating Temperature
RSB-4411CD-PNA1E	NXP i.MX6 Dual-core, 1 GHz	1 GB	4 GB	1	1	1	1	1 x 4-wire RSB-232/422/485 2 x 2-wire RSB-232	1	5	–	1	2	0 ~ 60 °C
RSB-4411CQ-PNA1E	NXP i.MX6 Quad-core, 1 GHz	1 GB	4 GB	1	1	1	1	1 x 4-wire RSB-232/422/485 2 x 2-wire RSB-232	1	5	–	1	2	0 ~ 60 °C
RSB-4411WD-ONA1E	NXP i.MX6 Dual-core 800MHz	1GB	4GB	1	1	1	1	1 x 4-wire RSB-232/422/485 2 x 2-wire RSB-232	1	5	-	1	2	-40~85 °C
RSB-4411WQ-ONA1E	NXP i.MX6 Quad-core 800MHz	1GB	4GB	1	1	1	1	1 x 4-wire RSB-232/422/485 2 x 2-wire RSB-232	1	5	-	1	2	-40~85 °C

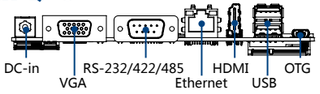
Packing List

Part Number	Description
RSB-4411	RSB-4411 3.5" SBC

Optional Accessories

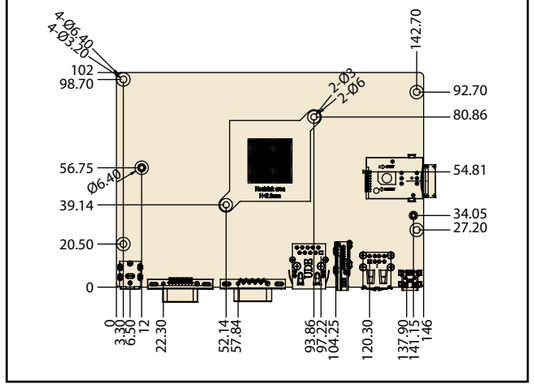
Part Number	Description
96PSA-A36W12R1	Adapter 100-240 36W 12V 3A 9NA0362308
170203183C	Power cord 3P Europe (WS-010+WS-083) 183 cm
170203180A	Power cord 3P UK 2.5A/3A 250 V 1.83 M
1700001524	Power cord 3P UL 10A 125 V 180 cm
1700021565-01	Debug cable
1700018730	USB cable
1700026878-01	Mic-in cable
1700026879-01	Line-out cable
1700026880-01	CAN bus cable
1700026881-01	RS-232 cable

External I/O



Dimensions

Unit: mm



RSB-4410

Freescale ARM Cortex-A9 i.MX6
3.5寸单板计算机

Features

- Freescale Cortex-A9 i.MX6 Solo/Dual core 1.0 GHz
- On-board DDR3 1 GB & 4 GB eMMC NAND Flash
- Supports full HD 1080P H/W video codec engine
- Networking capability of Giga LAN, WiFi, 3G and HSDPA
- Low power consumption
- Supports Linux BSP V3.0.35/ Android 4.2.2

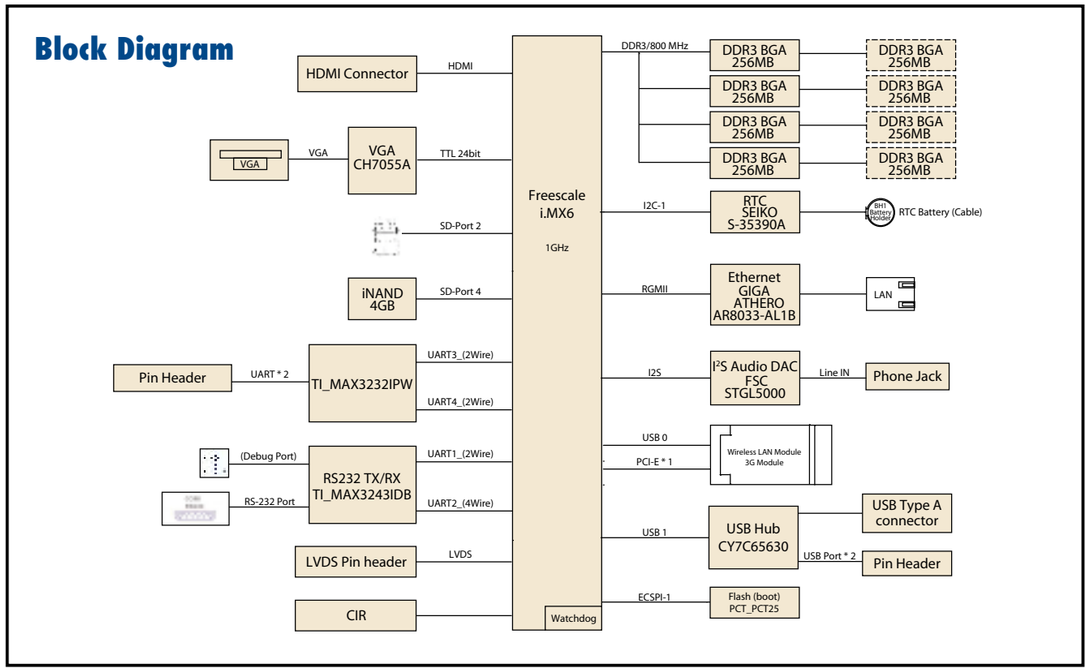
Introduction

RSB-4410 is an Advantech RISC 3.5" SBC powered by Freescale ARM® Cortex-A9 i.MX6 dual-core high performance processor, which provide sufficient power for Full HD video encoding/decoding, and also support Gigabit Ethernet for networking. RSB-4410 also supports miniPCIe and SIM card slot for WiFi and 3G module. Advantech will provide Linux BSP V3.0.35 or Android BSP 4.2.2 for customer building up their own application software.

Specifications

Form Factor		3.5" SBC
Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Solo/Dual 1GHz
	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 512 MB / 1GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	LVDS	1 single channel 18/24-bit LVDS
	HDMI	1
	VGA	1
	Graphics Engine	3 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 x 10/100/1000 Mbps
WatchDog Timer		256-level timer interval, from 0 ~ 128 sec
I/O	SATA	-
	SATA Power	-
	USB	1 x USB Type A and 2 x USB pin header
	Audio	1 x Line-out
	SPDIF	-
	SDIO	2
	Serial Port	2 x 2 wires UART pin header 1 x 4 wires UART, DB9
	SPI	-
	CAN	-
	GPIO	-
	I2C	-
	System Bus	-
	Touch	-
	I/R	1 I/R remote control pin header
	Button	1 x Reset button
Expansion	Mini PCIe	1 x mini PCIe slot
	SD Socket	1 x SD slot
	SIM	1 x SIM slot
Power	Power Supply Voltage	12 V
	Power Type	DC-in
	Power Consumption	2.3 Watts
Environment	Operational Temperature	0 ~ 60° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	146 x 102 x 20 mm
Operating System		Linux V3.0.35/ Android 4.2.2
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

Part No.	CPU	Memory	Flash	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB Host	USB OTG	System bus	SD	CANbus	Operating Temperature
RSB-4410CD-MDA1E	Freescale i.MX6 Dual 1 GHz	1 GB	4 GB	1	1	1	1	2 x 2 wire UART, 1 x RS232	-	3	1	-	1	-	0 ~ 60° C
RSB-4410CS-MCA1E	Freescale i.MX6 Solo 1 GHz	512 MB	4 GB	1	1	1	1	2 x 2 wire UART, 1 x RS232	-	3	1	-	1	-	0 ~ 60° C

Packing List

Part Number	Description	Quantity
RSB-4410	RSB-4410 SBC	1

Optional Accessories

Part Number	Description
1757003553	Adapter 100-240V 36W 12V 3A W/O PFC 9NA0361603
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm
1960051438N001	Cooler I-NB-ICH7 S-3W 31x31x12-WC DAC-BC05 40C
96LEDK-A070WV35NB1	Panel G070VW01 V1
1700021565-01	Debug cable
1700018730	USB cable
1700022161-01	UART cable
1700022130-01	LVDS cable
1700022131-01	Backlight cable

RSB-4221

TI Sitara™ ARM® AM3358 Cortex®-A8 3.5" SBC

Features

- TI Sitara AM3358 Cortex A8 1.0GHz
- On board DDR3 800MHz 512MB memory and 4GB NAND flash EMMC
- Supports 18-bit LVDS with up to 1366 x 768 resolution
- Hardware watchdog timer for system protection
- M.2 E-key slot for WI-Fi/Bluetooth module
- Operating temperature 0~60°C
- Lower power consumption, faneless design
- Supports Linux and Android BSP

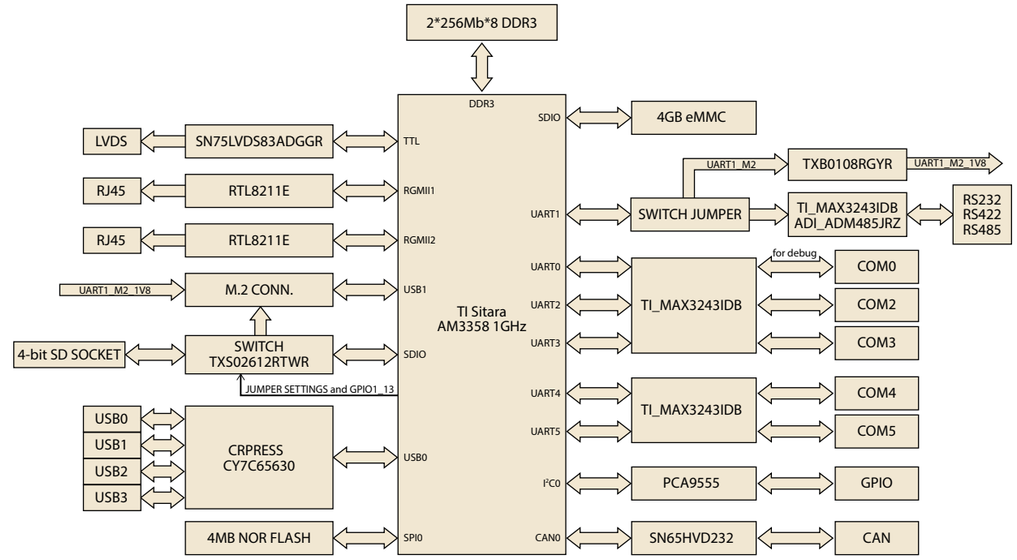
Introduction

RSB-4221 is a RISC single board computer (SBC) integrated with a TI Sitara AM3358 Cortex-A8 processor. This system features two gigabit Ethernet ports, five serial ports, four USB host ports, a hardware watchdog timer, as well as M.2/SD to enable Wi-Fi and Bluetooth. RSB-4221 also supports touch panel control via USB and single-channel 18-bit LVDS with up to 1366 x 768 resolution, providing the ideal automation control solution for smart grid, industrial, and machine automation applications.

Specifications

Form Factor		3.5" SBC
Processor System	CPU	TI Sitara AM3358 Cortex A8 1.0 GHz
	Capacity	Onboard DDR3 800 MHz 512 MB
	Flash	4 GB eMMC NAND Flash for OS and 4 MB SPI NOR Flash for ADV loader
Graphics	LVDS	Supports 18-bit LVDS with up to 1366 x 768 resolution
	Touch	Yes, via USB signal
Ethernet	Chipset	TI AM3358 integrated RGMII
	Speed	2 x 10/100/1000 Mbps
WatchDog Timer		MSP430G2202 (time out: 1 ~ 6553 s, default 60 s/power on/off 1 s)
I/O	USB	4 x USB 2.0 hosts (2 x USB ports and 2 x pin headers)
	Serial	1 x 4-wire RS232/422/485 and 4 x 2-wire RS232 ports
	CAN	1
	GPIO	12
	I²C	1
	Recovery	1 x recovery button (for Android)
Expansion	M.2	1 x M.2 for Wi-Fi and Bluetooth
	SD Socket	1 x SD (optional w/ M.2)
Power	Power Supply Voltage	+12V DC-in
	Power Type	2-pole lockable DC-in
	Power Consumption	TBC
Environment	Operating Temperature	0 ~ 60 °C
	Operating Humidity	5 ~ 95% relative humidity, non-condensing
Mechanical	Dimensions (W x D x H)	146 x 102 x 1.6 mm
Operating System	Android	4.2.2
	Linux	Kernel 3.2.0
Certifications		CE/FCC Class B

Block Diagram



Ordering Information

Part Number	CPU	Memory	eMMC	SPI	LCD	SD	CAN	UART	GPIO	Touch	USB Host	LAN	M.2	Operating Temperature
RSB-4221CS-MCA1E	TI AM3358 1 GHz	512 MB	4 GB	4 MB	1	1	1	5	12	1	4	2	1	0 ~ 60 °C

Packing List

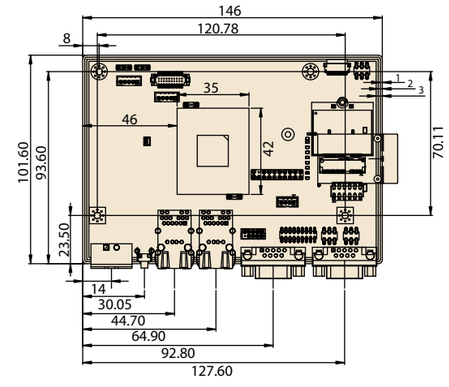
Part Number	Description	Quantity
RSB-4221CS-MCA1E	RSB-4221 TI AM3358 1 Ghz 512 MB	1

Optional Accessories

Part Number	Description
1700022161-01	A cable D-SUB 9P(F) 1-to-2 UART cable
96PSA-A36W12R1	A/D 100 ~ 240 V, 36 W, 12 V
1700023575-01	CAN cable
1700023576-01	A cable USB-A 1-to-2 cable
1700019474	D-SUB 9P(F)/D-SUB 9P(F) Debug/RS232/RS485 cable
SQF-ISDS1-4G-82C	SQF SD C6 SLC 4G, 1CH
170203183C	Power cord 3P Europe (WS-010 + WS-083)183 cm
1700023307-01	DC jack/plug-in 1*2P-5.0 10 cm RSB-4220 cable
1700023366-01	Backlight cable
1700024543-01	LVDS cable
170203180A	Power cord 3P UK 2.5A/3A 250 V 1.83 M
1700001524	Power cord 3P UL 10A 125 V 180 cm
IDK-1107WR-40WVA1E	7-inch LCD w/ touch control

Dimensions

Unit: mm



RSB-4220

TI Sitara AM3352 Cotrex A8
3.5" Single board

Preliminary

Features

- TI Sitara AM3352 Cortex A8 1.0GHz
- On-board DDR3 800MHz 512MB & 4MB SPI NOR Flash & 4GB eMMC NAND Flash
- Support 4GPI / 4GPO w/ESD & isolation
- 6x UART w/ESD protection (Contact 4KV / Air 8KV)
- Support 2x Gigabit Ethernet ports and 1x Mini PCIe socket
- Supports Linux Kernel V3.2.0
- Operation temperature 0 ~ 60° C / -40 ~ 85° C
- Support 18bit LVDS resolution up to 1366 x 768
- HW WTD for system protection

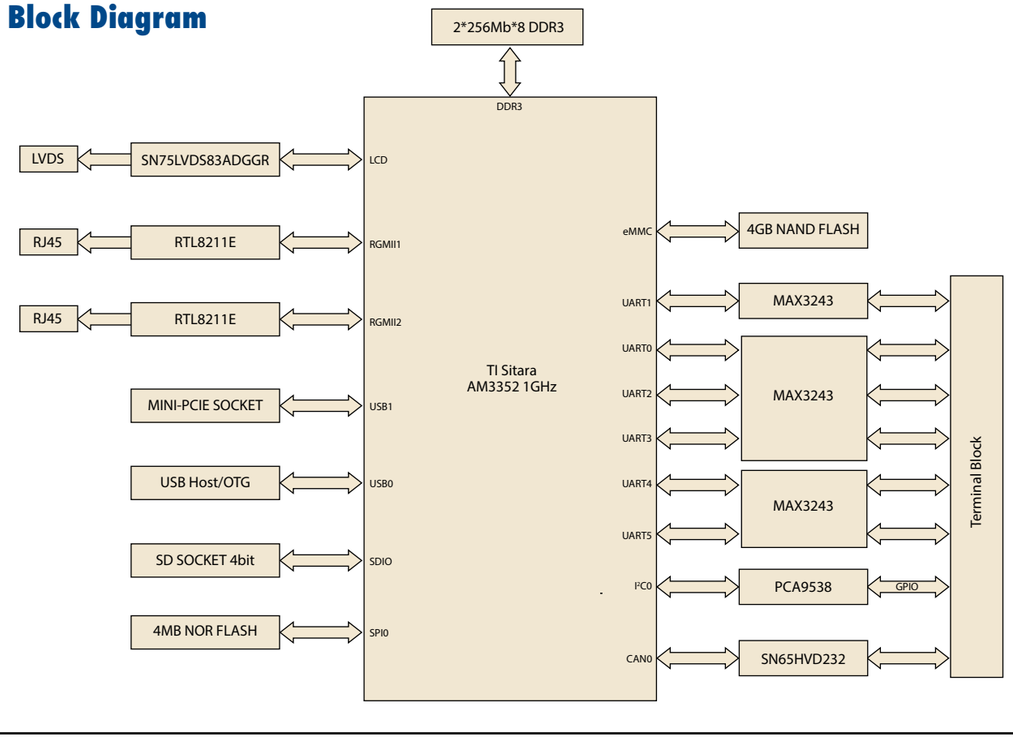
Introduction

RSB-4220 series are the RISC SBC which integrated TI Sitara AM3352 Cortex-A8 processor. It offers 2x gigabit Ethernets, 6x serials port, 4x GPI and 4x GPO. For the industrial application, the UART & GPIO feature a rugged ESD and isolatoin protection and it can protect system from unstable power damage. Otherwise, RSB-4220 also has multiple power input and operation temperature support,even support a single channel 18 bit LVDS up to 1366 x 768 resolution. It is an ideal solution for automation control such as smart grid, industrial and machinery automation applications.

Specifications

Form Factor		3.5" SBC	
Processor System	CPU	TI Sitara AM3352 Cortex A8 1.0GHz	
	Capacity	On-board DDR3 800MHz 512MB	
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for booting code	
Graphics	LVDS	Support 18bit LVDS resolution up to 1366 x 768	
Ethernet	Transceiver	TI AM3352 Integrated RGMII	
	Speed	2 x 10/100/1000 Mbps	
WatchDog Timer		MSP430G2202 (time out:1~6553s,default 60s/power on/off 1s)	
I/O	USB	USB2.0 HOST /OTG (By jumper selection)	
	UART	6 (1x 4 wires RS-232/422/485, 5x 2 wires RS-232) The 6 UART w/ ESD protection (Contact 4KV/ Air 8KV)	
	CAN	1 x CAN bus version 2.0 A and B	
	GPIO	4x GPI/4x GPO (w/ESD & isolation, optional) **GPI:** ESD protection: Contact 4KV/ Air 8KV Isolation: 0 ~ 50Voc input and 10KHz speed	**GPO:** ESD protection: Contact 4KV/ Air 8KV Isolation: 5 ~ 40Voc output and 10KHz speed (200mA max/chanel sink current)
	I^2C	1	
	Button	1x Reset	
Expansion	Mini PCIe	1x mini-PCIe socket (USB signal only)	
	SD Socket	1 x SD slot	
Power	Power Supply Voltage	+ 12/19/24 VDC-In	
	Power Type	Two poles lockable DC-in	
	Power Consumption	2.8W (Idle)	
Environment	Operational Temperature	0 ~ 60° C/ -40 ~ 85° C	
	Operating Humidity	5%~95% Relative Humidity, non-condensing	
Mechanical	Dimensions (W x D x H)	146 x 102 x 1.6 mm	
Operating System		Linux kernel v3.2.0	
Certifications		CE/FCC Class B	

Block Diagram



Ordering Information

Part Number	CPU	Memory	eMMC	LCD	SD	CAN	UART	GPIO	Isolation	ESD	USB host/ OGT	LAN	mini-PCIe	Operation Temperature
RSB-4220CS-MCA1E	TI AM3352 1.0GHz	512MB	4GB	1	1	1	6	8	Serial: No GPIO: Yes	Serial: Yes GPIO: Yes	1	2	1	0 ~ 60° C
RSB-4220WS-MCA1E	TI AM3352 1.0GHz	512MB	4GB	1	1	1	6	8	Serial: No GPIO: Yes	Serial: Yes GPIO: Yes	1	2	1	-40 ~ 85° C

Packing List

Part Number	Description	Quantity
1652006830-01	TERMINAL BLOCK 20x2P 2.54mm 180D 0156-1A40	1
RSB-4220CS-MCA1E	RSB-4220 1GHz for 0~60°	Choose Any One
RSB-4220WS-MCA1E	RSB-4220 1GHz for -40~85°	

Optional Accessories

Part Number	Description
1652006830-01	20x2P 2.54mm 180D 0156-1A40
1757003553	Adapter 100~240V 36W 12V 3A w/o PFC 9NA0361603
96LEDK-A070WV40NB1	7" LED PANEL 350N 800X480(G) G070VW01 V1
1700022248-02	M CABLE USB-A(M)/USB-A(M) 15CM AMK-V006E
1700021565-11	Debug Cable
SQF-ISDS1-4G-82C	SQF SD C6 SLC 4G, 1CH
170203183C	Power Cord 3P Europe (WS-010+WS-083)183cm
1700023307-01	A cable DC JACK/Plug-in 1*2P-5.0 10cm RSB-4220
1700023366-01	Backlight cable
1700023367-01	LVDS cable
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm

RSB-4210

Freescale ARM Cortex-A8 i.MX53 SBC

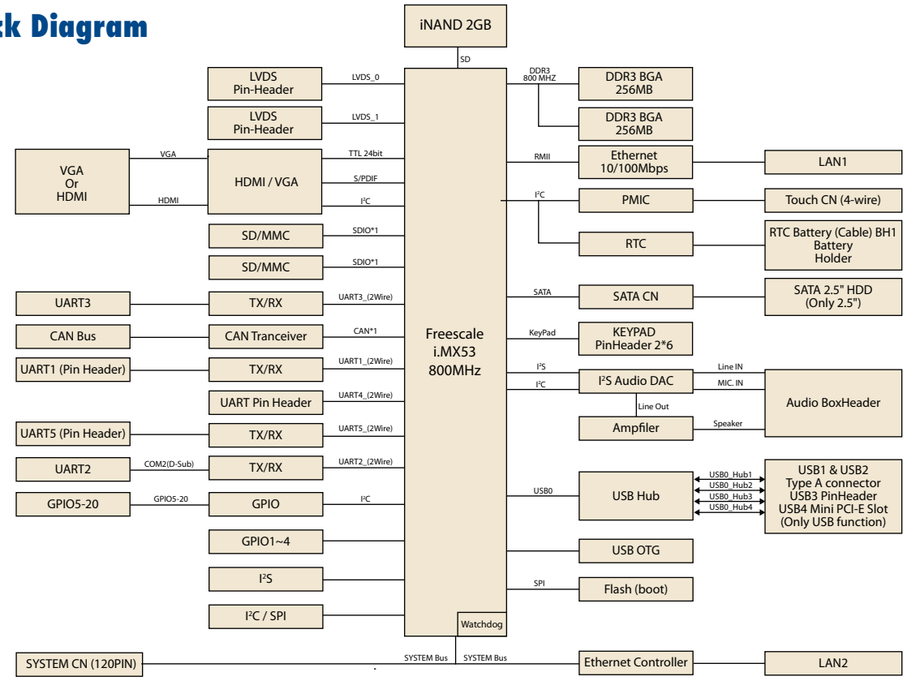
Features

- Freescale ARM® Cortex-A8 i.MX53 800MHz high performance processor
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators
- Supports full HD 1080p video decode and HD 720p video encode hardware engine
- LCD, Touch, UART, I²C, SPI, GPIO, USB, VGA, HDMI I/O interface
- Supports SATA storage interface and CAN-bus for vehicle applications
- DC power input support 9 ~ 24 V
- Supports Embedded Linux 2.6, Windows® Embedded Compact 7

Specifications

Form Factor		3.5" SBC
Processor System	CPU	Freescale i.MX53 800 MHz (ARM Cortex A8)
	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 x 24-bit LVDS
	HDMI	-
	VGA	1 (Suppots Max resolution 720p Video playback)
	Graphics Engine	1 IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX53 integrated MII
	Speed	2x 10/100 Mbps
WatchDog Timer		Yes
I/O	SATA	1
	SATA Power	Yes
	USB	3 x USB 2.0 Host 1 x USB 2.0 OTG
	Audio	Line-in, Speaker-out, Mic-in
	SPDIF	-
	SDIO	2x (SD slot x1, pin header x1)
	Serial Port	2 x 2 wire pin header 1 x RS-485, 1 x 2 wire DB9 connector
	SPI	1
	CAN	1
	GPIO	20-pin 3.3V TTL Level GPIOs
	I2C	1
	System Bus	Yes
	Touch	4-wire resistive type
	Keypad	6 x 6 matrix
	Button	-
Expansion	Mini PCIe	Only USB signal
	SD Socket	1 x SD slot
	SIM	1 x SIM slot
Power	Power Supply Voltage	9 ~ 24 V
	Power Type	DC-in
	Power Consumption	2.3 Watts
Environment	Operational Temperature	0 ~ 60° C/ -40 ~ 85° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	146 x 102 x 20 mm
Operating System		Linux V2.6
Certifications		CE/FCC Class A

Block Diagram

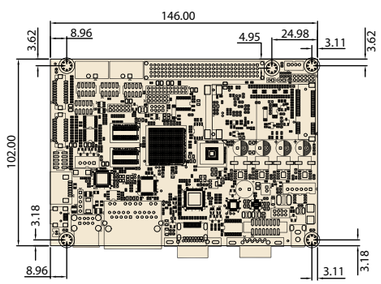


Ordering Information

Part No.	CPU	Memory	Flash	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB Host	USB OTG	System bus	SD	CANbus	Operating Temperature
RSB-4210CF-A78AAE	Freescale i.MX536 Cortex-A8 800 MHz	512 MB	4 GB	-	1	2	2	2 x 2 wire UART, 1 x RS232, 1 x RS485	Yes	4	1	Yes	2	Yes	0 ~ 60° C
RSB-4210WF-A78AAE	Freescale i.MX536 Cortex-A8 800 MHz	512 MB	4 GB	-	1	2	2	2 x 2 wire UART, 1 x RS232, 1 x RS485	Yes	4	1	Yes	2	Yes	-40 ~ 85° C

Dimensions

Unit: mm

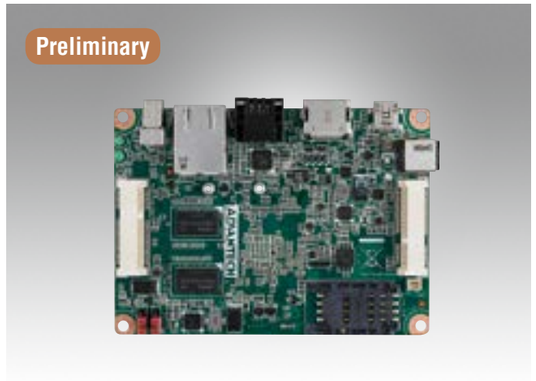


RSB-4210DK-B00E Design-in Package

Part No.	Description
RSB-4210DK-B00E	Evaluation kit for Freescale i.MX53 w/ Linux 2.6 512MB DDR3 SDRAM, 2 GB flash
Power cord	1700001524 for 3-pin USA standard power cord 170203183C for 3-pin Europe standard power cord 170203180A for 3-pin UK standard power cord

RSB-3410

Freescale i.MX6 Pico-ITX SBC



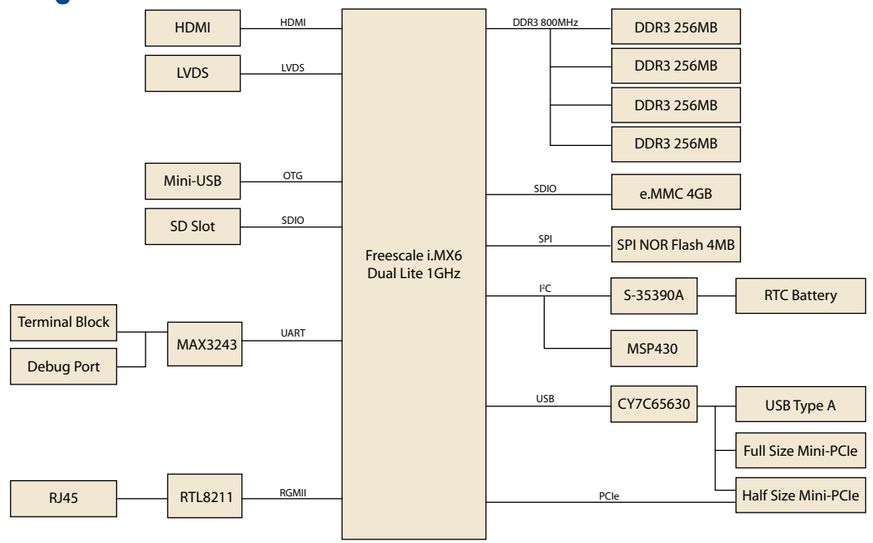
Features

- Freescale ARM Cortex-A9 i.MX6 Dual Lite 1 GHz high performance processor
- Onboard DDR3 1 GB, 4 GB eMMC Flash
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators, full HD 1080p video codec
- HDMI 1920x1080, Single Channel 18/24 bit LVDS
- 1 4-wire UART, 1 SD Slot
- 1 USB 2.0, 1 USB OTG
- 1 10/100/1000 Mbps Ethernet
- Dual mini-PCIe for WIFI/3G support
- Multiple OS support in Linux/Android

Specifications

Processor System	CPU	Freescale i.MX6 Cortex-A9 Dual Lite 1 GHz
Memory	Technology	DDR3 800 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC Flash for O.S. and 4 MB NOR Flash for Advantech boot loader
Graphics	HDMI	1 HDMI, 1920x1080
	LVDS	Single Channel 18/24 bit LVDS
	Graphics Engine	1 IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 10/100/1000 Mbps
WatchDog Timer	WatchDog Timer	External HW WDT
I/O	USB	1 USB 2.0 Type A
	USB OTG	1 USB 2.0 OTG
	SDIO	1 SD Slot
	UART	1 4-wire UART (Tx, Rx, RTS, CTS)
Indicator	LED	1 Green LED for the system power 1 Green LED for user define
Expansion	Full Size Mini PCIe	1
	Half Size Mini PCIe	1
	SD Socket	1
	SIM	1
Power	Power Supply Voltage	12 V_{DC}
	Power Type	DC-in
	Power Consumption	3W (Max. load)
Environment	Operating Temperature	0 ~ 60° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions	100 x 72 x 21 mm
	Weight	65G
Operating System	Linux	V3.0.35
	Android	V4.2.2
Certifications		CE/FCC Class B

Block Diagram



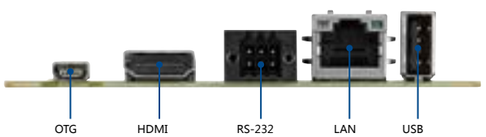
Ordering Information

Part No.	CPU	Memory	Flash	HDMI	VGA	LVDS	LAN	Serial Port	SATA	USB Host	System bus	SD	CANbus	Operating Temperature
RSB-3410DL-MDA1E	Freescale i.MX6 Dual Lite 1 GHz	1 GB	4 GB	1	-	1	1	1 x 4 wire RS-232	-	1 USB2.0 1 OTG	-	1	-	0 ~ 60° C

Optional Accessories

Part Number	Description
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
EWM-W151H01E	Advantech 802.11bgn RTL8188EE 1T1R, 1-connector
EWM-C106FT02E	HSPA/WCDMA/GPRS Cellular module
1750006043	Cable R/P SMA (M) to MHF 1.32 150mm (WiFi Cable)
1750000318	EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384(WiFi Antenna)
1750006264	Antenna SMA(F)/MHF 15cm SMALFN8-3150A-00X00R (3G Cable)
1750005865	Antenna L=10.9cm 50Ohm AN8921F-5701SM (3G Antenna)
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M

External I/O



UBC-DS31

Freescale ARM Cortex-A9 i.MX6 Full HD RISC Signage Box

Features

- Freescale i.MX6 Cortex-A9 Dual 1 GHz
- On-board DDR3 1 GB & 4 GB Flash
- Supports Full HD 1080P H/W video codec engine
- Giga LAN networking capability
- Low power, fanless design
- Supports wall mount, VESA mount and a flexible mount with 2 screws
- Removable cover for SD card
- Support SUSIAccess for Sigange and U-Poster signage software

Introduction

UBC-DS31 provides enough power for Full HD video, and is powered by a Freescale ARM Cortex-A9 i.MX6 dual-core high performance processor with built-in Gigabit Ethernet for networking. It is easy to set up with its compact size and flexible mounting design, including wall mount, and VESA 75/100 mount. UBC-DS31 is easy to assemble in any application environment and comes preloaded with SUSIAccess software for remote management and Signage Player control.

SUSIAccess for signage is based on the Linux QT framework, and integrates multiple functions including content production and device management. "Content Producer" includes a content editor, layout editor and content description; "Device Conductor" supports status monitoring, content dispatch and firmware updates. Users can manage and control the content of all devices through Ethernet from servers and management centers

U-Poster is Android based Sigange software. Users can easily edit the configurations like:Layout, Playlist,marquee and scheduling through a smart Wizard. U-poster is designed for users who have no FTP server. It built-in ftp server for local content server. Moreover, it also supports Dropbox cloud service that will be more useful for SMBs.

Specifications

Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual 1 GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	HDMI	1 (Resolution: 1920 x 1080)
	VGA	1 (Resolution: 1920 x 1080)
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP Encoder: MPEG-4 SP, H.264 BP, H.263
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer	WatchDog Timer	Yes
I/O	USB	1
	Audio	1 Line-out
	SPDIF	-
	SDIO	1 x SD slot
	Serial Port	1 x RS-232 (CTS,RTS,Tx, Rx)
	Button	1 Reset button
Indicator	LED	2 Green LED for the system power and RF status
Expansion	MiniPCIe	1 miniPCIe socket
	SIM	1 SIM socket
Power	Power Supply Voltage	12 V_{DC}
	Power Type	DC-in
	Power Consumption	2.3 Watts
Environment	Operational Temperature	0 ~ 40° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	191 x 129 x 30 mm with metal plate 166 x 117 x 30 mm without metal plate
	Mounting	Wall mount, VESA 75/100, Flexible mount with two screw holes on the metal plate
	Weight	265g
Operating System	Linux based	SUSIAccess for Signage
	Android based	U-Poster 1.0
Certifications		CE/FCC Class B

Software Key Features

	SUSIAccess for Signage	U-Poster
Content edit	✓	✓
Layout edit	✓	✓
Video Playback	✓ (Max 1)	✓ (Max 2)
Photo slide show	✓	✓
Marquee	✓ (Max 1)	✓ (Max 2)
RSS info board	-	✓
Realtime clock / Weather	-	✓
Content update	via USB/SD Card	via USB/SD Card
Firmware update	Remote access	via SD Card
Web/ HTML5 support	-	✓
Hardware monitoring	✓	-
Preview	✓	-
Landscape & Portrait	Landscape	Landscape & Portrait

Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	HDMI	MiniPCIe & SIM slot	Software	Operating Temperature
UBC-DS31CD-MDA1E	Freescale i.MX6 Dual 1 GHz	1 GB	4 GB	1	1	1	1	1	SUSIAccess for Signage	0 ~ 40° C
UBC-DS31CD-PAA1E	Freescale i.MX6 Dual 1 GHz	1 GB	4 GB	1	1	1	1	1	U-Poster	0 ~ 40° C

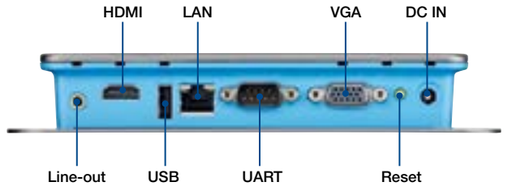
Packing List

Part No.	Description	Quantity
1990022408T000	UBC-D31-SD COVER	1
1931041020	Screws for VESA mount	4
1930003218	Screws for system &VESA mount	2
2022DS3100	UBC-DS31 China RoHS	1
2002DS3110	Quick start Guide	1

Optional Accessories

Part Number	Description
96PSA-A36W12R1	Adapter 100-240 36W 12V 3A 9NA0362308
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm
1990022422S000	Fixed rail 71.3Lx6.2W mm YJC-64C for UBC-DS31
1990022423S000	Fixed ring DIA:7.5-8.5 FWM-8K for UBC-DS31
1700021565-01	Debug cable

External I/O



UBC-330

TI Sitara AM3352 Cortex-A8 RISC box

Features

- TI Sitara AM3352 Cortex A8 1.0GHz
- On-board DDR3-800 512MB & eMMC NAND flash 4GB
- Support 4xGPI/ 4xGPO w/ESD & Isolation
- 6x UART w/ESD protection
- Support 2x Gigabit Ethernet ports
- Supports Linux Kernel v3.2.0
- Operation temperature 0 ~ 55° C
- HW WTD for system protection

Introduction

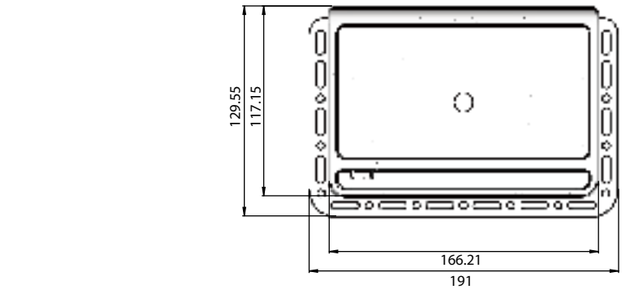
UBC-330 is a RISC complete box which integrated TI Sitara AM3352 Cortex-A8 processor. It offers 2x gigabit ethernets, 6x serials, 4x GPI and 4x GPO. For the industrial application, the UART & GPIO feature a rugged ESD and isolation protection and it can protect system from unstable power damage. Otherwise, UBC-330 also has multiple power input and operation temperature support. It is an ideal solution for automation control such as smart grid, industrial and machinery automation applications.

Specifications

Form Factor		Computing Box
Processor System	CPU	TI Sitara AM3352 Cortex-A8 1.0GHz
	Capacity	On-board DDR3 800MHz 512MB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for ADV Loader
Ethernet	Transceiver	TI AM3352 Integrated RGMII
	Speed	2x 10/100/1000 Mbps
WatchDog Timer		MSP430G2202 (time out:1~6553s,default 60s/power on/off 1s)
I/O	USB	1 x USB2.0 host
	UART	6 (6 x RS232) The 6 UART w/ ESD protection (Contact 4KV/ Air 8KV)
	CAN	CAN bus version 2.0 A and B
	GPIO	4x GPI/4x GPO (w/ESD & isolation, optional) **GPI:** ESD protection: Contact 4KV/ Air 8KV Isolation: 0 ~ 50V_{DC} input and 10KHz speed **GPO:** ESD protection: Contact 4KV/ Air 8KV Isolation: 5 ~ 40V_{DC} output and 10KHz speed (200mA max/chanel sink current)
	I^2C	1
	Button	1x Reset
Expansion	SD Socket	1x SD slot
Power	Power Supply Voltage	+12/19/24V DC-In
	Power Type	Two poles lockable DC-in
	Power Consumption	2.8W (Idle)
Environment	Operational Temperature	0 ~ 55°C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D x H)	117 x 166 x 30 mm
Operating System		Linux kernel v3.2.0
Certifications		CE FCC/CCC Class B

Dimensions

Unit: mm



Ordering Information

Part Number	CPU	Memory	eMMC	SD	CAN	UART	GPIO	Isolation	ESD	USB Host	LAN	Operation Temperature
UBC-330NS-JLA1E	TI AM3352 1.0GHz	512MB	4GB	1	1	6	8	Serial: No GPIO: Yes	Serial: Yes GPIO: Yes	1	2	0 ~ 55° C

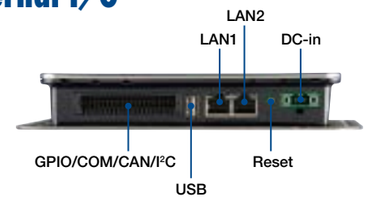
Packing List

Part Number	Description
UBC-330NS-JLA1E	UBC-330 AM3352 1GHz 512MB Box
1652006830-01	20x2P 2.54mm 180D 0156-1A40

Optional Accessories

Part Number	Description
1757003553	Adapter 100~240V 36W 12V 3A w/o PFC 9NA0361603
1700023307-01	A cable DC JACK/Plug-in 1*2P-5.0 10cm RSB-4220
170203183C	Power Cord 3P Europe (WS-010+WS-083)183cm
SQF-ISDS1-4G-82C	SQF SD C6 SLC 4G, 1CH
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm

External I/O



UBC-310

Freescale ARM Cortex-A9 i.MX6 Full HD RISC Signage Box

Features

- Freescale i.MX6 Cortex-A9 Dual Lite 1 GHz
- On-board DDR3 1 GB & 4 GB Flash
- Supports Full HD 1080P H/W video codec engine
- Giga LAN networking capability
- Low power, fanless design
- Supports wall mount, VESA mount and a flexible mount with 2 screws
- Removable cover for SD card
- Support SUSIAccess for Sigange

Introduction

UBC-310 provides enough power for Full HD video, and is powered by a Freescale ARM Cortex-A9 i.MX6 dual-core high performance processor with built-in Gigabit Ethernet for networking. It is easy to set up with its compact size and flexible mounting design, including wall mount, and VESA 75/100 mount. UBC-310 is easy to assemble in any application environment and comes preloaded with SUSIAccess software for remote management and Signage Player control.

SUSIAccess for signage is based on the Linux QT framework, and integrates multiple functions including content production and device management. "Content Producer" includes a content editor, layout editor and content description; "Device Conductor" supports status monitoring, content dispatch and firmware updates. Users can manage and control the content of all devices through Ethernet from servers and management centers.

Specifications

Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual Lite 1 GHz
Memory	Technology	DDR3 800 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC NAND Flash for O.S. and 4 MB SPI NOR Flash for Advantech boot loader
Graphics	HDMI	1 (Resolution: 1920 x 1080)
	VGA	-
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP Encoder: MPEG-4 SP, H.264 BP, H.263
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer	WatchDog Timer	Yes
I/O	USB	1
	Audio	1 Line-out
	SPDIF	-
	SDIO	1 x SD slot
	Serial Port	1 x RS-232 (CTS,RTS,Tx, Rx)
	Button	1 Reset button
Indicator	LED	2 Green LED for the system power and RF status
Power	Power Supply Voltage	12 V_{DC}
	Power Type	DC-in
	Power Consumption	2.3 Watts
Environment	Operational Temperature	0 ~ 40° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	191 x 129 x 30 mm with metal plate 166 x 117 x 30 mm without metal plate
	Mounting	Wall mount, VESA 75/100, Flexible mount with two screw holes on the metal plate
Mechanical	Weight	400g
Operating System	Linux based	SUSIAccess for Signage
Certifications		CE/FCC Class B

Software Key Features

	SUSIAccess for Signage
Content edit	✓
Layout edit	✓
Video Playback	✓ (Max 1)
Photo slide show	✓
Marquee	✓ (Max 1)
RSS info board	-
Realtime clock / Weather	-
Content update	via USB/SD Card
Firmware update	Remote access
Web/ HTML5 support	-
Hardware monitoring	✓
Preview	✓
Landscape & Portrait	Landscape

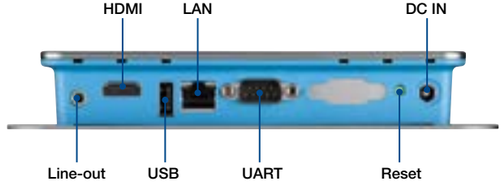
Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	HDMI	SD Slot	Software	Operating Temperature
UBC-310DL-MDA1E	Freescale i.MX6 Dual Lite 1 GHz	1 GB	4 GB	1	1	1	1	1	SUSIAccess for Signage	0 ~ 40° C

Packing List

Part No.	Description	Quantity
1990022408T000	UBC-D31-SD COVER	1
1931041020	Screws for VESA mount	4
1930003218	Screws for system &VESA mount	2

External I/O



Optional Accessories

Part Number	Description
96PSA-A36W12R1	Adapter 100-240V 36W 12V 3A W/O PFC 9NA0361603
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm
1990022422S000	Fixed rail 71.3Lx6.2W mm YJC-64C for UBC-DS31
1990022423S000	Fixed ring DIA:7.5-8.5 FWM-8K for UBC-DS31
1700021565-01	Debug cable

UBC-221

Intel Quark x1000 2.5" IoT Gateway

Features

- Intel Quark x1000 Single core 400MHz
- On-board DDR3 800MHz 512MB
- Support 4 GPIO and 1 UART
- Support 2x 10/100 Ethernets and 1x MiniPCIe sockets
- Yocto Linux
- Supports a flexible mount

Introduction

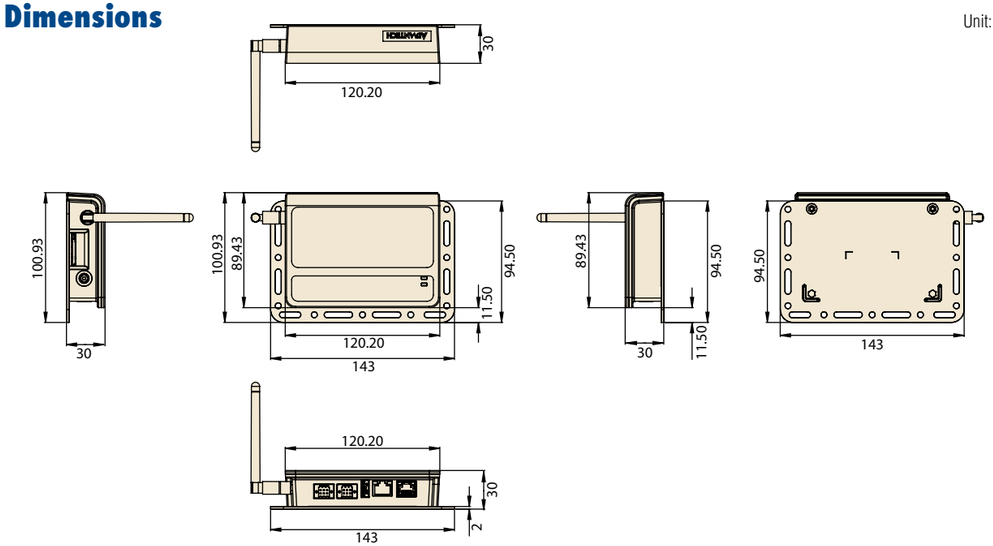
UBC-221 is an Advantech IoT gateway powered by Intel Quark x1000 processor which is a sufficient performance and cost efficient solution for IoT application. UBC-221 support multiple connections. Also, the PoE and web-base manangement will be easy for user to installation and maintenace.

Specifications

Form Factor		Box Computing
Processor System	CPU	Intel Quark x1000 400MHz
	Technology	DDR3 800 MHz
	Capacity	On-board DDR3 512 MB
	Flash	4 MB SPI NOR Flash for Advantech boot loader
Ethernet	Chipset	onboard
	Speed	2 x 10/100 Mbps (one with optional PoE support)
WatchDog Timer		1 ~ 256 level
I/O	USB	1 USB 2.0 host
	SDIO	1 4-bit SD Socket
	Serial Port	1 UART (support 4 wires)
	CAN	-
	GPIO	2 pins for GPI (with isolation support) 2 pins for GPO
	LED	1 Power LED 1 LED with programmable ability
	Button	-
Expansion	Mini PCIe	1 x mini PCIe slot (PCIe and USB signals)
	SD Socket	1 x SD slot
Power	Power Supply Voltage	+12V
	Power Type	DC-in
	Power Consumption	TBC
Environment	Operational Temperature	0 ~ 40° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Box Computing	Dimensions (L x W x H)	108 x 79 x 30 mm
Operating System		Yocto Linux
Certifications		CE/FCC Class B

Dimensions

Unit: mm



Ordering Information

Part Number	CPU	Memory	Flash	LAN	GPIO	miniPCIe	Serial Port	CAN Bus	USB Host	USB OTG	SD	Operation temeperature
UBC-221CS-GNA1E	Intel Quark x1000 400MHz	DDR3 512MB	-	1x 10/100 1x 10/100 with PoE	4	1	1	-	1	-	1	0 ~ 40° C

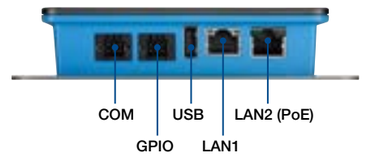
Optional Accessories

Part Number	Description
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
96PSA-A36W12R1	Adapter 100-240V 36W 12V 3A
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
1700001524	Power Cord 3P UL 10A 125V 180cm
1700021565-01	Debug cable

Packing List

Part Number	Description	Quantity
100212852	6 pin terminal block	2

External I/O



UBC-220

Freescale i.MX6 RISC Compact Box

Features

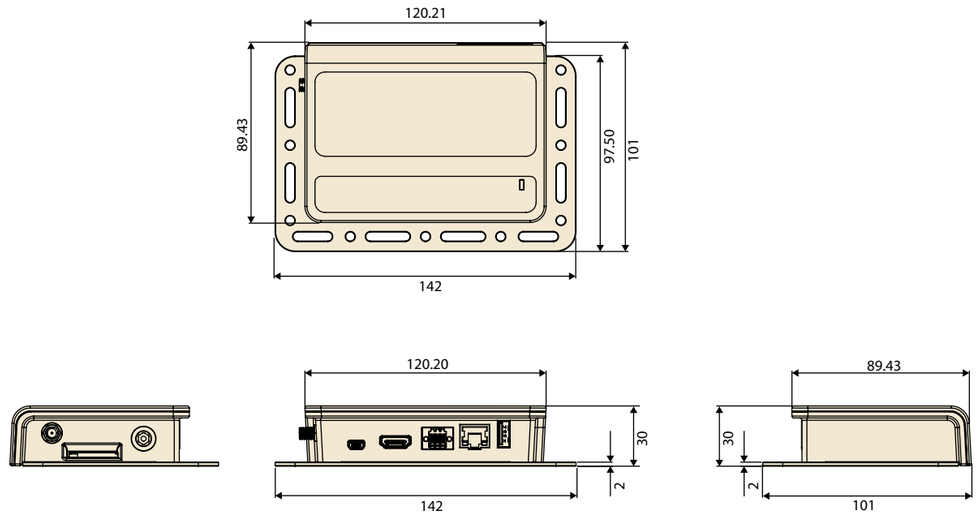
- Freescale ARM Cortex-A9 i.MX6 Dual Lite 1 GHz high performance processor
- Onboard DDR3 1 GB, 4 GB eMMC Flash
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators, full HD 1080p video codec
- HDMI 1920x1080
- Single Channel 18/24 bit LVDS
- 1 4-wire UART
- 1 USB 2.0, 1 USB OTG client
- 1 10/100/1000 Mbps Ethernet; 1 SD Slot
- Dual mini-PCIe for WIFI/3G support
- Multiple OS support in Linux/Android

Specifications

Processor System	CPU	Freescale i.MX6 Cortex-A9 Dual Lite 1 GHz
Memory	Technology	DDR3 800 MHz
	Capacity	On-board DDR3 1 GB
	Flash	4 GB eMMC Flash for O.S. and 4 MB NOR Flash for Advantech boot loader
Graphics	HDMI	1
	LVDS	Single Channel 18/24 bit LVDS
	Graphics Engine	1 IPU. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 10/100/1000 Mbps
WatchDog Timer	WatchDog Timer	External HW WDT
I/O	USB	1 USB 2.0 Type A
	USB OTG	1 USB 2.0 OTG
	SDIO	1 SD slot
	UART	1 4-wire
Indicator	LED	1 Green LED for the system power 1 Green LED defined by user
Expansion	Full Size Mini PCIe	1
	Half Size Mini PCIe	1
	SD Socket	1
	SIM	1
	Antenna Hole	1
Power	Power Supply Voltage	12 V_{DC}
	Power Type	DC-in
	Power Consumption	3W (Max. load)
Environment	Operating Temperature	0 ~ 40° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions	142 x 101 x 30 mm
	Mounting	Wall mount, DIN Rail, VESA mount
	Weight	210G
Operating System	Linux	V3.0.35
	Android	V4.2.2
Certifications		CE/FCC Class B

Dimensions

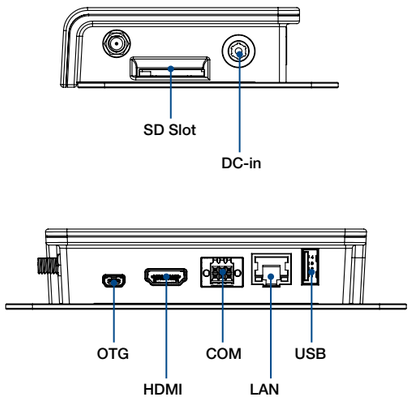
Unit: mm



Optional Accessories

Part Number	Description
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
EWM-W151H01E	Advantech 802.11bgn RTL8188EE 1T1R, 1-connector
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)
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M

External I/O



UBC-200

Freescale ARM Cortex-A9 i.MX6 RISC Compact Box Computer

Features

- Freescale ARM Cortex-A9 i.MX6 Dual/Quad 1 GHz high performance processor
- Onboard DDR3 1 GB, up to 2 GB
- On board 4 GB eMMC Flash
- Supports OpenGL ES 2.0 and OpenVG 1.1 hardware accelerators, full HD 1080p video codec
- HDMI 1920x1080
- 1 USB 2.0, 1 10/100/1000 Mbps Ethernet; 1 SD Slot
- On board mini-PCIe connector for WIFI/3G module support
- Low power, fanless design
- Supports wall mount and Din-rail

Introduction

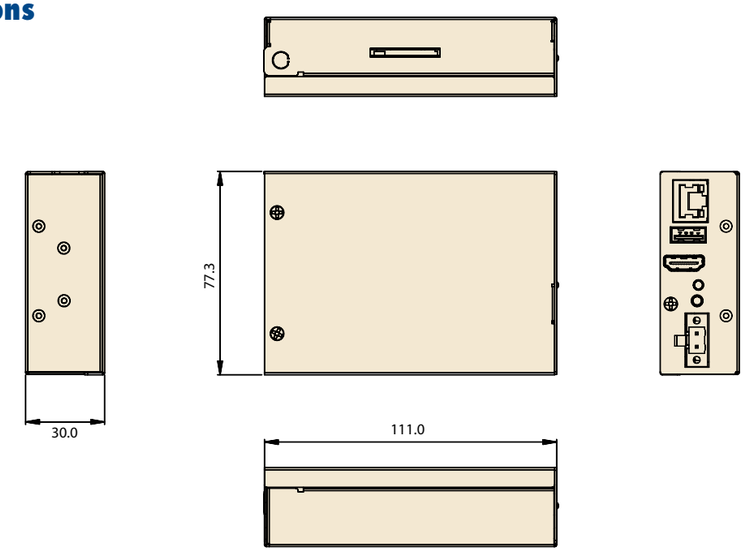
UBC-200 is an IP-based RISC compact box for industrial applications and the IoT market. With a powerful ARM Freescale i.MX6 Cortex-A9 Dual/Quad core processor inside, UBC-200 is the best choice to fulfill the requirements of CPU performance and power consumption. It supports USB 2.0, HDMI up to 1080p and Gigabit Ethernet. As well as one mini PCIe slot for WIFI/3G module support and a built-in SD card socket for storage expansion. With the wall mount brackets enclosed in UBC-200 package, you can easily install it on a solid wall or any material surfaces.

Specifications

Processor System	CPU	Freescale i.MX6 Cortex-A9 Dual/Quad 1GHz
Memory	Technology	DDR3 1066 MHz
	Capacity	On-board DDR3 1 GB, up to 2 GB
	Flash	4 GB eMMC Flash for O.S. and 4 MB NOR Flash for Advantech boot loader
Graphics	HDMI	1
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	H/W Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	Freescale i.MX6 integrated RGMII
	Speed	1 10/100/1000 Mbps
RTC	RTC	Yes
WatchDog Timer	WatchDog Timer	Yes
I/O	USB	1 USB 2.0
	SDIO	1 SD slot
	Button	1 Reset button
Indicator	LED	1 Green LED for the system power
Expansion	Mini PCIe	1
	SD Socket	1
	SIM	1
Power	Power Supply Voltage	9 ~ 24 V_{DC}
	Power Type	Two poles lockable DC-in
	Power Consumption	3.16W (Max. load)
Environment	Operating Temperature	0 ~ 60° C
	Operating Humidity	5%~95% Relative Humidity, non-condensing
Mechanical	Dimensions (W x D)	111 x 77 x 30 mm
	Mounting	Wall mount, DIN-Rail
	Weight	312G
Operating System	Linux	V3.0.35
Certifications		CE/FCC Class B

Dimensions

Unit: mm



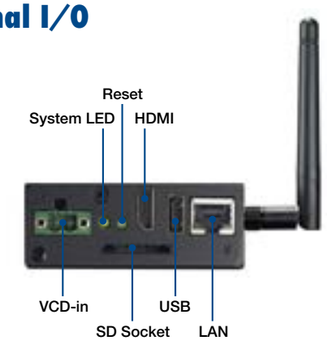
Ordering Information

Part No.	CPU	Memory	Flash Memory	UART	LAN	USB Host	HDMI	Size	Operating Temperature
UBC-200CD-MDA1E	Freescale i.MX6 Dual 1 GHz	1 GB	4 GB	-	1	1	1	111 x 77 x 30mm	0 ~ 60° C
UBC-200CQ-MEA1E	Freescale i.MX6 Quad 1 GHz	2 GB	4 GB	-	1	1	1	111 x 77 x 30mm	0 ~ 60° C

Optional Accessories

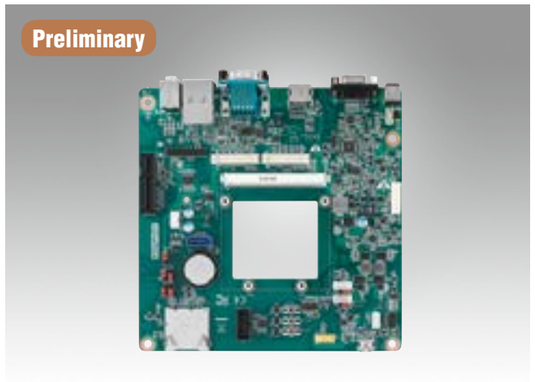
Part Number	Description
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A
1700017968	DC-Jack/Plug-in cable
1960015198T011	DIN-rail for UBC-200
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
1750007050-01	WiFi RP-SMA short SMA Jack(9.5mm) 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 50Ohm AN8921F-5701SM (3G Antenna)
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M

External I/O



ROM-DB7501

Development Board for Qseven v2.0 RISC Module



CE FCC RoHS

Features

- Supports Qseven v2.0 module form factor
- Mini-ITX form factor
- 2 24-bit LVDS, 1 VGA, 1 HDMI
- Smart battery support
- 8 GPIO, Line-in/Audio-out
- Support ATX mode, Input power +12V
- Cable pack included

Introduction

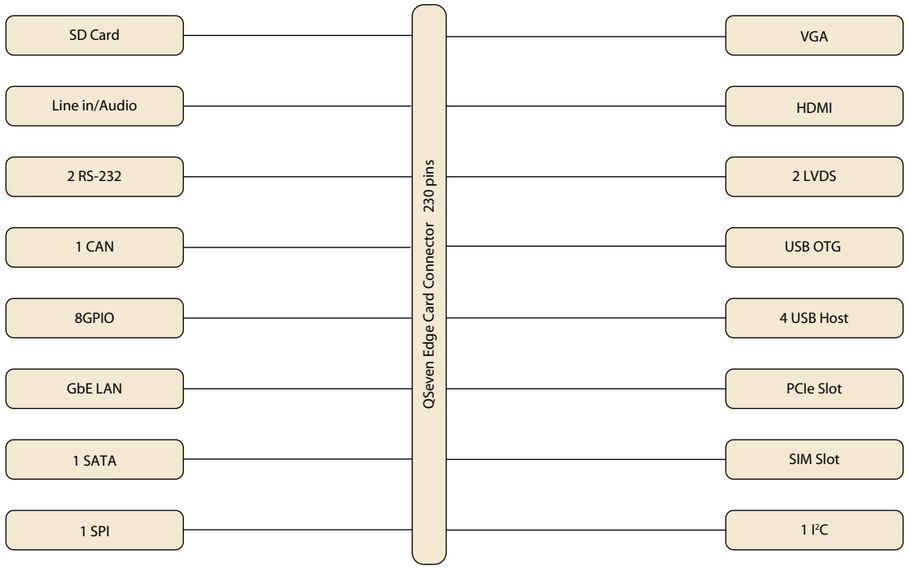
ROM-DB7501 is an Referenced Carrier Board designed for Advantech's RISC Qseven 2.0 module. It i provides a thorough environment for module board evaluation with its complete function support. It also supports 12V power input through AC/DC power adapter and with smart battery design, it's more easier for the end user to design portable devices by referring ROM-DB7501 design.

ROM-DB7501 is offered along with several carrier board design documents: Carrier Board Design Guide, layout checklist, schematics checklist and the refer schematics are all ready for you to start your own carrier board design. With ROM-DB7501, you can quickly start evaluating your Qseven 2.0 module and design your own carrier board.

Specifications

Compatible Modules		Qseven v2.0 CPU module
Graphics	HDMI	1 HDMI TypeA
	LVDS	2 Single 24-bit LVDS
	VGA	1 D-Sub 15 with female connector
Ethernet	LAN	1 GbE with RJ45 connector
Storage	Flash	-
	SD	1 SD card slot
	SATA	1 SATAII Connector (with SATA-DOM support)
I/O	USB	1 USB mini Type B (OTG), 2 USB 2.0 Type A, 1 USB 9-Pin Header
	COM	1 4-wire RS-232 DB9, 1 4-wire RS-232 Pin header
	Audio	1 2 port phone jack, support Line-in , Line-out
	CAN	1 CAN bus 2.0B DB9, Differential mode +5V
	GPIO	1 DB9 female
	I²C	1 pin header
	SPI	1 pin header
	Camera Input	-
	Keypad	-
	I²S	1 pin header
Expansion	PCIe Slot	1 PCIe by 2
	System bus	-
Power Input	Power	2 Power Inputs (+12V DC-Jack, Lithium-ion battery)
Environment	Operating Temperature	0 ~ 60 °C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Physical Characteristics	Dimensions	170 x 170 mm

Block Diagram



Ordering Information

Part No.	Description
ROM-DB7501-SCA1E	Development board for RISC Qseven Module series

Packing List

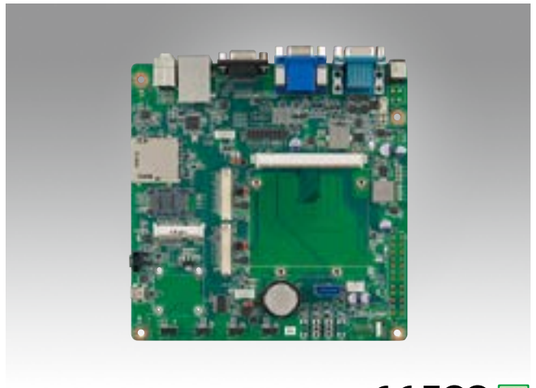
Part No.	Description
1700022373-01	Debug port cable for ROM-5420
9696ED2000E	Debug Port for ROM-7420
1654909900	DB9 Loopback
1700004711	SATA Cable
1700021941-01	SATA Power Cable
1700021861-01	USB Cable Type A
1700019076	USB OTG Host Cable
1700019077	USB OTG Client Cable
1700021882-01	LVDS Backlight Cable
1700021883-01	LVDS Cable

Optional Accessories

Part No.	Description
96PSA-A36W12R1	Adapter 100-240V 36W 12V 3A
1700001524	Power cord 3P UL 180cm
170203183C	Power cord 3P EU 183cm
170203180A	Power cord 3P UK 183cm
1700008921	Power Cord 3P PSE 183cm
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
EWM-C106FT01E	Cellular, HSUPA/WCDMA/GPRS,Full Mini PCIe
1750007156-01	Cellular/GPS SMA Short JACK(9.5MM) L=100mm (3G Cable)
1750007050-01	WiFi RP-SMA short SMA Jack(9.5mm) to U.FL_100mm (WiFi Cable)
1750000318	EMI Antenna 2DBI 2.4GHz SMA (WiFi Antenna)
1750005865	Antenna L=10.9cm 500hm AN8921F-5701SM (3G Antenna)
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1 CH (-40 ~ 85°C)

ROM-DB7500

Development board for RISC Qseven Module



Features

- Supports Advantech Qseven CPU Module Board
- Supports 24-bit LVDS Panel
- Supports 1 PCIe x1
- Supports 1 SATA, 4 UART, 1 RJ-45, 4 USB 2.0 (with 1 OTG)
- HD Audio Codec
- Supports dual CAN bus
- Supports VGA and HDMI out
- Onboard SD card slot, SIM card slot

Introduction

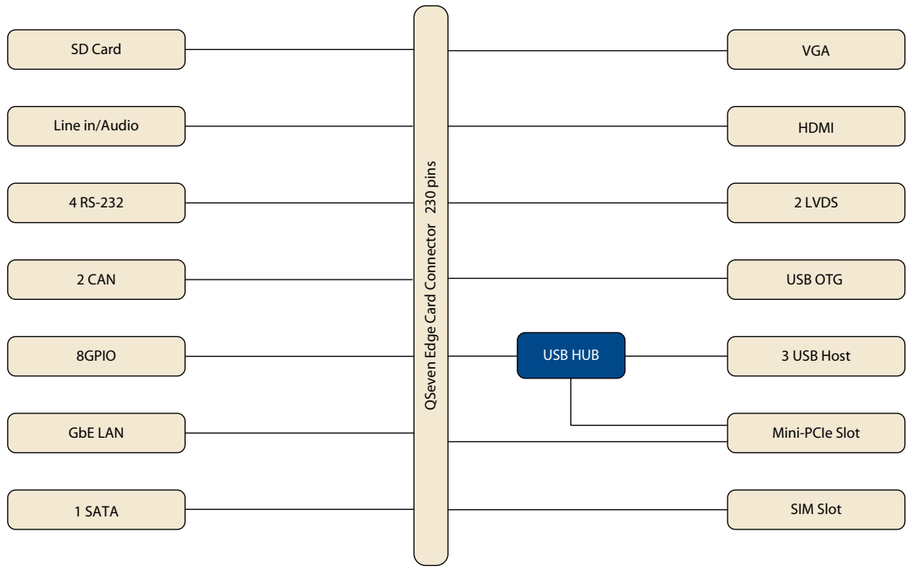
ROM-DB7500 is the Evaluation Carrier Board designed for Advantech's RISC Qseven module. It is compatible with the Qseven module ROM-7420 and provides a thorough environment for RISC module board evaluation. It supports wide range temperature and also 12V power input through AC/DC power adapter.

ROM-DB7500 is released along with ROM-7420 carrier board design documents: Carrier Board Design Guide, Layout Checklist, Schematic Checklist, and also the reference board schematics ready for you to start your own carrier board design. With ROM-DB7500, you can easily learn the power of Advantech RISC Qseven module.

Specifications

Compatible Modules		Advantech Qseven CPU Module Series (70 x 70 mm)
Graphics	HDMI	Max. resolution 1920 x 1080, HDMI Type A
	LVDS	Dual 24-bit LVDS
	VGA	Max. resolution 1920 x 1080, female D-SUB 15 pin
Ethernet	i.MX6 Integrated RGMII	RJ-45
Audio	Audio	HD Audio with I²S
	Supported Formats	MP3, AAC, WAV
Expansion	SIM Socket	1
	SD/MMC	1
	Mini PCIe	1
I/O	USB	2 USB 2.0 Type A, 1 USB pin connector
	USB Client	1 USB OTG
	COM	4 UART pin header
	SATA	1 SATA2
	CAN	2 CAN 2.0B ports, Differential mode 5V
	GPIO	8 GPIO w/ 3.3V level
Power	Power Type	12 V DC-jack
Environment	Operating Temperature	0 ~ 60° C
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Physical Characteristics	Dimensions	170 x 170 mm (66.93" x 66.93")

Block Diagram



Ordering Information

Part No.	Description
ROM-DB7500-SCA1E	Development board for RISC Qseven Module series

Packing List

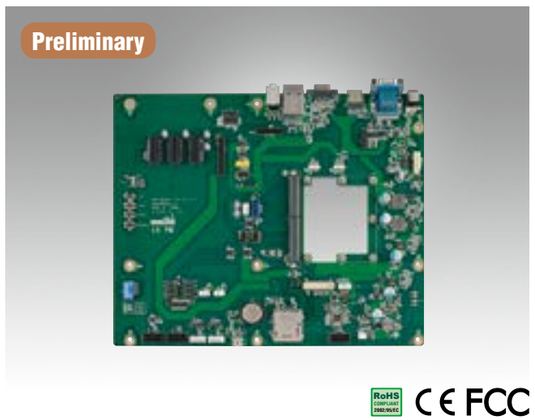
Part No.	Description	Quantity
1700020442-01	Debug Port Cable for ROM-7420	1
9696ED2000E	Debug Port for ROM-7420	1
1654909900	UART Loopback	1
1700004711	SATA Cable	1
1700021941-01	SATA Power Cable	1
1700021861-01	USB Cable Type A	1
1700019076	USB OTG Host Cable	1
1700019077	USB OTG Client Cable	1
1700021882-01	LVDS Backlight Cable	1
1700021883-01	LVDS Cable	1
1700100250	UART cable DB9	1
96PSA-A36W12R1	ADAPTER 100-240V 36W 12V 3A	1

Optional Accessories

Part No.	Description
1700001524	Power Cord 3P UL 10A 125V 180cm
170203183C	Power Code 3P Europe (WS-010+WS-083)183cm
170203180A	Power Cord 3P UK 2.5A/3A 250V 1.83M
SQF-ISDS1-2G-86E	SQFlash SD card SLC 2G, 1CH (-40 ~ 85° C)
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
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 50Ohm AN8921F-5701SM (3G Antenna)

ROM-DB5900

Development board for RISC SMARC v1.0 Module



Features

- Supports SGeT SMARC CPU Module Board
- 3 display outputs. VGA, HDMI, 24-bit LVDS
- 1 SATA/SATA-DOM, 1 RJ-45, 2 USB 2.0, 2 CAN bus, 4 UART, 12 GPIO
- 1 PCIe x1
- 2 MIPI interfaces for camera module
- Onboard eMMC Flash 4 GB, SD card
- Supports HD Audio codec and SPDIF
- Supports +12V DC and Lithium-ion battery power input

Introduction

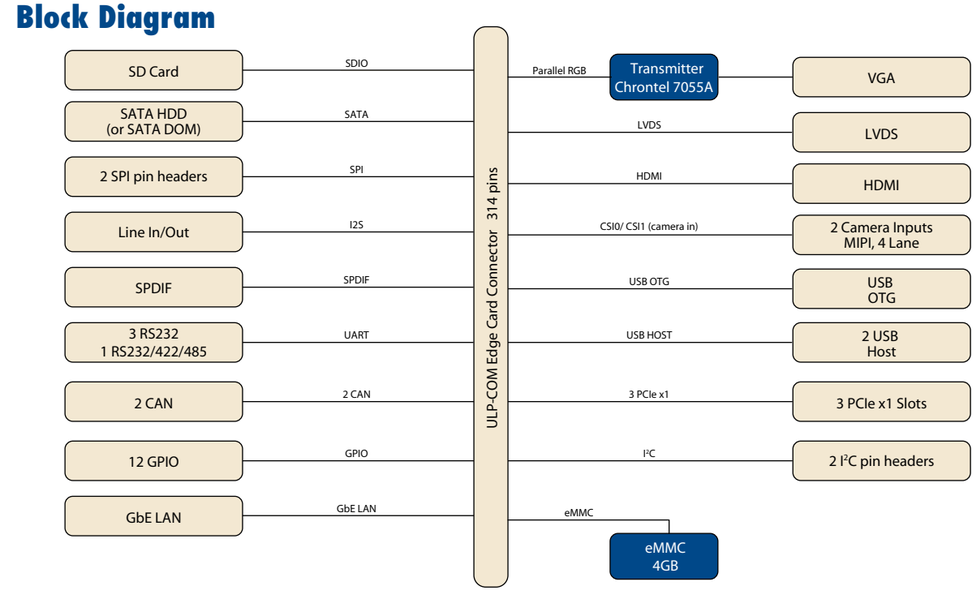
ROM-DB5900 is a evaluation carrier board designed for the Advantech SMARC module. It is compatible with SMARC module ROM-5420 and has rich I/O interface for evaluation and development. It supports wide range operating temperatures, 2 power input interfaces and also supports 2 MIPI connectors for the camera module. ROM-DB5900 is an ideal development board for mobile applications, such as portable device, industrial tablet or HMI systems.

ROM-DB5900 is released along with RISC SMARC carrier board design documents: Carrier Board Design Guide, Layout, Schedmatic Checklist, and also the reference board schematics ready for you to start your own carrier board design. With ROM-DB5900, you can easily learn the power of Advantech RISC SMARC module.

Specifications

Compatible Module		Advantech SMARC v1.0 CPU Module Series
Graphics	HDMI	1 HDMI TypeA
	LVDS	1 Dual 18/24-bit LVDS
	VGA	1 D-Sub 15 with female connector
Ethernet	10/100/100 Mbps	1 RJ-45
Storage	Flash	Onboard 4 GB eMMC
	SD	1 SD card slot
	SATA	1 SATAII Connector (with SATA-DOM support)
I/O	USB	2 USB 2.0 Type A (Host), 1 min USB Type AB (OTG)
	UART	4 UART Ports
	Audio	1 1/8 Audio Jack (I²S HD Audio), 1 SPDIF Pin header
	CAN	2 CAN 2.0B ports, Differential mode +5V
	GPIO	12 GPIO Ports
	I²C	1 I²C pin header
	SPI	2 SPI pin header
	Camera Input	2 MIPI connectors
	AFB	1 30pin AFB connector
Expansion	PCIe Slot	3 PCIe x1
Power input	Power	2 Power Inputs (+12V DC-Jack, Lithium-ion battery)
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140 °F)
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Physical Characteristics	Dimensions	305 x 244 mm (12" x 9.6")

Block Diagram



Ordering Information

Part No.	Description
ROM-DB5900-SWA1E	Development board for RISC SMARC Module series

Option Accessories

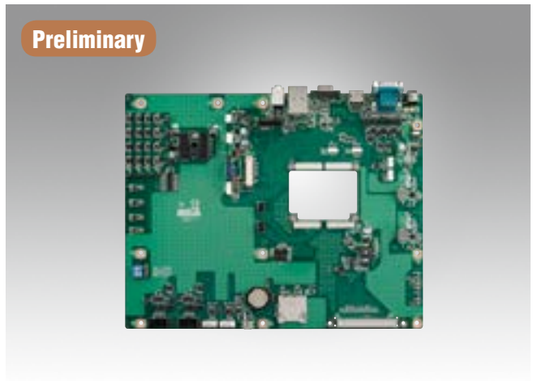
Part No.	Description
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
1750007050-01	WiFi RP-SMA short SMA Jack(9.5mm) to U.FL_100mm (WiFi Cable)
1750000318	EMI Antenna 2DBI 2.4GHz SMA CONN for ARK-3384 (WiFi Antenna)
EWM-C106FT01E	Cellular, HSUPA/WCDMA/GPRS,Full Mini PCIe
1750007156-01	Cellular/GPS SMA Short JACK(9.5MM) L=100mm (3G Cable)
1750005865	Antenna L=10.9cm 50Ohm AN8921F-5701SM (3G Antenna)
9680015491	PCIe to miniPCIe adapter card
96PSA-A36W12R1	Adapter 100-240V 36W 12V 3A
170203183C	Power Code 3P Europe 183cm
170203180A	Power Cord 3P UK 183cm
1700001524	Power Cord 3P UL 180cm

Packing List

Part No.	Description
9696ED2000E	debug adapter board
1700021882-01	LVDS backlight cable
1700021883-01	LVDS cable
1700021941-01	SATA power
1700004711	SATA signal
1700006911	USB OTG to Type A female
1700019077	USB OTG to Type A male
1701100300	F Cable IDE#3 10P-2.54/D-SUB 9P(M) 30cm for UART and CAN
1700022840-01	SPDIF to RCA cable for audio in and out
1700022373-01	Debug port cable for ROM-5420
1700019474	A Cable D-SUB 9P(F)/D-SUB 9P(F) RS232/RS485 100c

ROM-DB3900

Development board for RISC RTX2.0 Module



Features

- Supports RTX2.0 CPU Module Board
- 3 display outputs. VGA, HDMI, 24-bit LVDS
- 1 SATA/SATA-DOM, 1 RJ-45, 1 USB 3.0, 1 USB 2.0 OTG, 2 CAN bus, 4 UART, 10 GPIO
- 2 PCIe slots, 1 system bus PC104 connector
- 2 MIPI interfaces for camera module
- Onboard eMMC Flash 4 GB, SD card, SIM card slot
- Supports HD Audio codec
- Supports system bus for extension application

Introduction

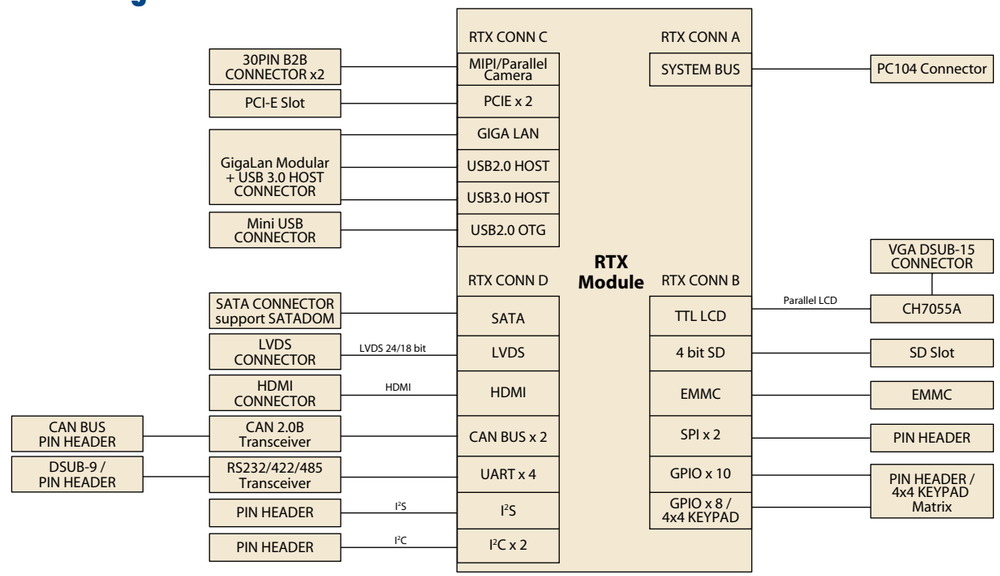
ROM-DB3900 is an evaluation carrier board designed for the Advantech RTX2.0 module. It is compatible with the RTX2.0 module ROM-3420 and has a rich I/O interface for evaluation and development. It supports wide range operating temperature, and also supports two MIPI connectors for a camera module. ROM-DB3900 is an ideal development board for ruggedized applications, such as industrial control, automation control and HDMI systems.

ROM-DB3900 is released along with RISC RTX2.0 carrier board design documents: Carrier Board Design Guide, Layout, Schematic Checklist, and also the reference board schematics are ready for you to start your own carrier board design. With ROM-DB3900, you can easily learn the power of Advantech's RISC RTX2.0 module.

Specifications

Compatible Module		Advantech RTX2.0 CPU Module Series (67 x 67 mm)
Graphics	HDMI	1 HDMI TypeA
	LVDS	1 Single 18/24-bit LVDS
	VGA	1 D-Sub 15 with female connector
Ethernet	LAN	1 GbE with RJ45 connector
Storage	Flash	Onboard 4 GB eMMC
	SD	1 SD card slot
	SATA	1 SATAII Connector (with SATA-DOM support)
I/O	USB	1 USB mini Type B (OTG), 1 USD 2.0/3.0 Type A
	UART	4 4wires UART all support RS-232/422/485(2x DB9 connector and 2x box header)
	Audio	1 2 port phone jack, support Line-in , Line-out
	CAN	2 CAN 2.0B ports, Differential mode +5V
	GPIO	1 2x10 pin header
	I²C	2 I²C pin header
	SPI	2 SPI pin header
	Camera Input	2 MIPI/Parallel B2B connectors
	Keypad	18 pin headers (share with GPIO)
	I²S	1 pin header
Expansion	PCIe Slot	2 PCIe x1
	System bus	1 PC104 connector (Address : 31 bits , Data : 16 bits)
Power input	Power	19V DC Jack
Environment	Operating Temperature	0 ~ 60° C (32 ~ 140° F)
	Operating Humidity	0% ~ 90% relative humidity, non-condensing
Physical Characteristics	Dimensions	305 x 244 mm (12" x 9.6")

Block Diagram



Ordering Information

Part No.	Description
ROM-DB3900-SWA1E	Development board for RISC RTX2.0 Module series

Optional Accessories

Part No.	Description
EWM-W142F01E	802.11 b/g/n,AR9287,2T2R,Full size Mini PCIe
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 50Ohm AN8921F-5701SM (3G Antenna)
9680015491	PCIe to miniPCIe adapter card
96PSA-A90W19V1-1	Adapter 100-240V 65W 19V
1700001524	for 3-pin USA standard power cord
170203183C	for 3-pin Europe standard power cord
170203180A	for 3-pin UK standard power cord
9696MX5300E	SYSTEM BUS to UART Board ROM-MX53

Packing List

Part No.	Description
9696ED2000E	debug adapter board
1700021882-01	LVDS backlight cable
1700021883-01	LVDS cable
1700021941-01	SATA power
1700004711	SATA signal
1700006911	USB OTG to Type A female
1700019077	USB OTG to Type A male
1701100300	F Cable IDE#3 10P-2.54/D-SUB 9P(M) 30cm for UART and CAN
1700022840-01	SPDIF to RCA cable for audio in and out
1700022373-01	Debug port cable for ROM-5420
1700019474	A Cable D-SUB 9P(F)/D-SUB 9P(F) RS232/RS485 100c

EBC-GF08

Development Board with Advantech CPU Modules

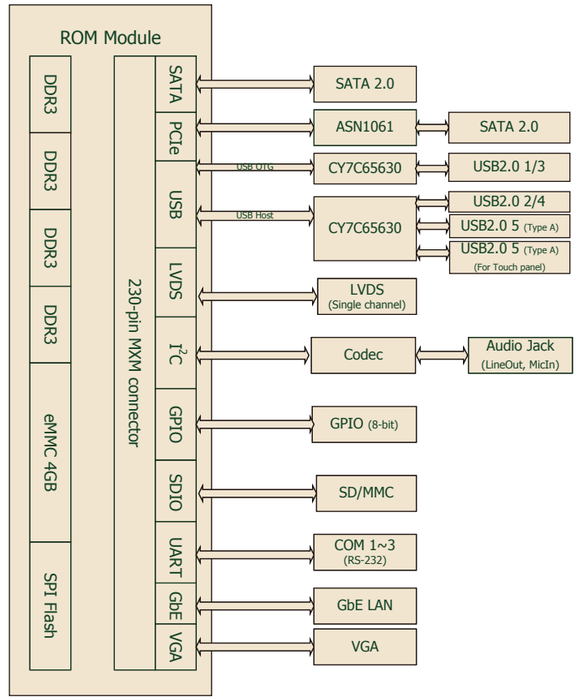
Features

- Compatible with Advantech Q7 CPU Module boards Supports Freescale ARM Cortex-A9 i.MX6 Dual 1GHz processor
- On board DDR3 memory 1GB
- On board eMMC NAND Flash 4GB
- Supports 2 SATAII, 6 USB, and 3 COM
- Supports VGA and LVDS out
- Onboard SD slot and 12V DC-In
- HD Audio Codec

Specifications

Compatible Model		Advantech Q7 CPU Modules (70x70mm)	
Processor System	CPU	Freescale ARM Cortex-A9 i.MX6 Dual 1GHz	
Memory	Technology	DDR3 1066 MHz	
	Capacity	On board DDR3 1GB	
	Flash	4GBeMMC NAND Flash for OS and 4MB SPI NOR Flash for Advantech boot loader	
	VGA	Supports up to 1920 x 1200	
	LVDS	Supports 18/24-bit single channel up to 1280 x 1024	
	Interface	10/100/1000 Mbps	
	i.MX6 Integrated RGMII	GbE RJ-45 x 1	
SATA	Max Data Transfer Rate	300MB/s	
	Channel	2	
Expansion	SD/MMC	1	
Audio	Audio	HD Audio with I²S	
I/O	VGA	1	
	LVDS	1	
	Ethernet	1	
	USB	6	
	Audio	2 (Line-Out, MIC-In)	
	Serial	3 x RS232	
	GPIO	1 (4-bit In/4-bit Out)	
WatchDog Timer		256-level timer interval, from 0-128sec	
Power	Power type	12V 4-pin (2x2) DC-Input power connector	
Environment		Operation	Non-Operation
	Temperature	0 ~ 60° C (32 ~ 140° F)	-40 ~ 85° C (-40 ~ 185° F)
Operating System		Linux Kernel v3.0.35	
Physical Characteristics	Dimensions	146mm x 102mm (5.7" x4")	

Board Diagram



Ordering Information

Part Number	Description
TBD	Development Board with Q7 CPU Modules

I/O View

EBC-GF06 A1

NXP ARM Cortex-A9 i.MX6 RISC Multiple I/Os system

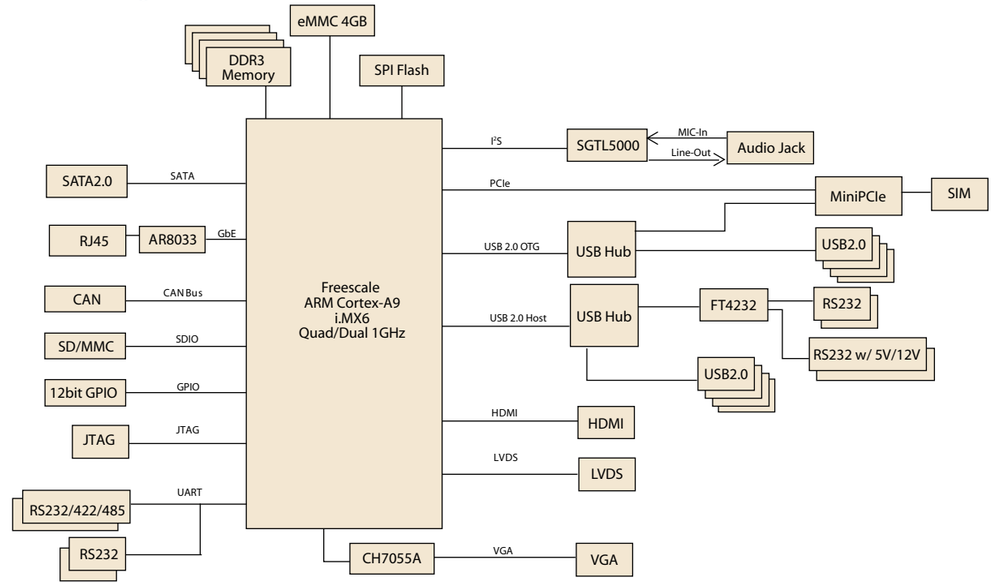
Features

- NXP ARM Cortex-A9 i.MX6 Quad 1GHz high performance processor
- On board DDR3 1066MHz 2GB memory and 4GB EMMC NAND flash
- Supports Dual Display: VGA/HDMI
- Supports 1 x mini-PCIe, 8 x serial ports, 8 x USB, 1 x Lan
- Low power consumption, fanless design
- Supports Android BSP

Specifications

Processor	CPU	NXP ARM Cortex-A9 i.MX6 Quad 1GHz processor
	Max. Speed	1GHz
Memory	Technology	DDR3 1066 MHz
	Max. Capacity	On-board DDR3 2GB
	Flash	4GB eMMC NAND Flash for O.S. and 4MB SPI NOR Flash for Advantech boot loader
Graphics	HDMI	Up to 1920 x 1080
	VGA	Up to 1920 x 1080
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	LVDS	Up to 24-bits dual channel 1920 x 1080
	HW Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	NXP i.MX6 integrated RGMII
	Speed	1 x 1000/100/10Mbps
RTC	RTC	Yes
Watchdog Timer		256-level timer interval, from 0 ~ 128 sec
Storage	SD/MMC	1
	SATA 2.0	1 (300MB/s per port)
Expansion	Mini PCIe	1 Full-size with USB 2.0, PCIex1, and SIM holder
Rear I/O Connector	VGA	1
	HDMI	1
	RJ-45	1
	USB 2.0	8
	Serial	2 x RS-232 with 5V/12V power 2 x RS-232/422/485 with jumper selection 4 x RS-232
	Audio Jack	1 (Line-out, Mic-in)
	SD/MMC	1
	DC Jack	1
	LED	1 Power LED
	Power Button	1
Internal Connector	Serial	-
	LVDS	1
	LVDS Inverter	1
	GPIO	1 for 12-bit GPIO
	CANBus	1
Power	Power Requirement	+12V (8A)
	Power Type	DC-in
	Power Connector	1 x 12V DC-in, 1 x 4-pin ATX 12V
Environment	Operation Temperature	0 ~ 50° C (32 ~ 130° F)
	Non-Operation Temperature	-40 ~ 85° C (-40 ~ 185° F)
	Operation Humidity	0% ~ 90% relative humidity, non-condensing
Motherboard Physical Characteristics	Dimensions	170 x 170 mm (6.69" x 6.69")
	Weight	0.3 kg
System Physical Characteristics	Dimensions	297 x 200 x 49 mm (11.7" x 7.87" x 1.9")
	Weight	1.8 kg

Board Diagram



Ordering Information

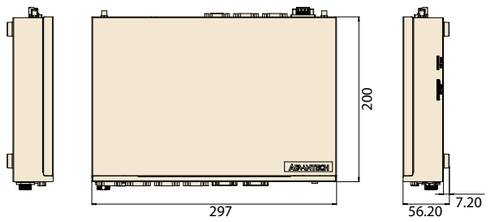
Part Number	System	CPU	DDR3	VGA	HDMI	LVDS	CAN	SATA	GPIO	LAN	USB	Serial	Wifi Module
EBC-GF06-00A1E	Yes	Quad	2GB	1	1	0	0	0	0	1	8	8	N/A

Optional Accessories

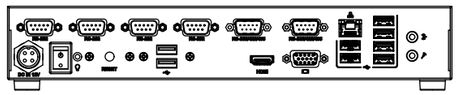
Part Number	Description
9680017201	Quectel 3G module UC20-G
SQF-ISDS1-4G-82C	SQFlash SD card 4G

Dimensions

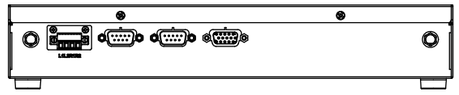
Unit: mm



Front View



Rear View



EBC-GF06 A2

NXP ARM Cortex-A9 i.MX6 RISC Multiple IOs system

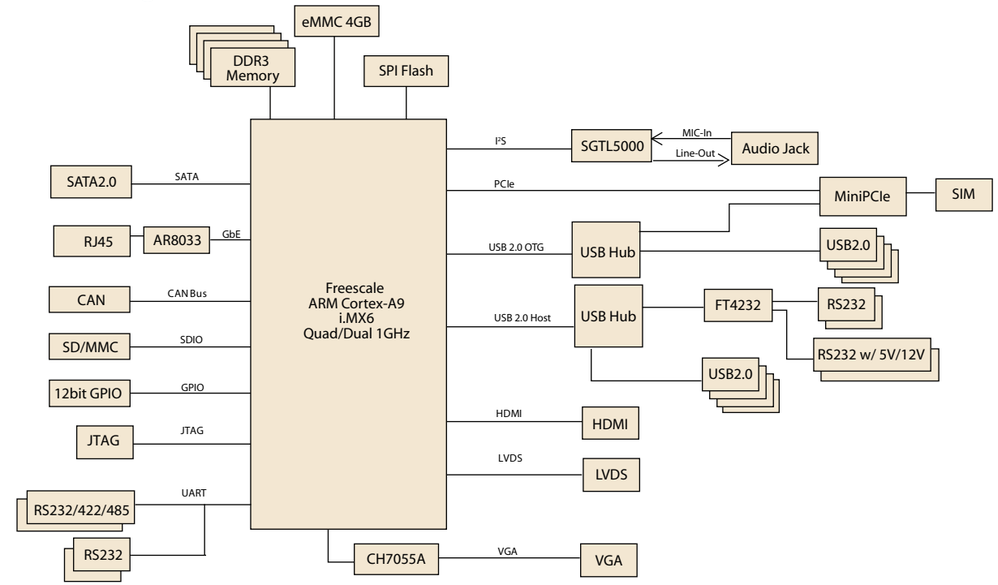
Features

- NXP ARM Cortex-A9 i.MX6 Quad/Dual 1GHz high performance processor with on board 2GB DDR3 memory
- Supports dual independent display configuration by multiple display interface: VGA, HDMI
- Diversified I/O interface in the rear side, 6 USB2.0, 6 Serial, 1 VGA and 1 HDMI
- 2 x 4wires RS232/RS485/RS422 DB9
- 4 x 2wires RS232 DB9
- Supports 1 Mini PCIe slot for 3G/wifi module with pluggable SIM socket and antenna mounting hole

Specifications

Processor	CPU	NXP ARM Cortex-A9 i.MX6 Quad/Dual 1GHz processor
	Max. Speed	1GHz
Memory	Technology	DDR3 1066 MHz
	Max. Capacity	On-board DDR3 2GB
	Flash	8GB eMMC NAND Flash for O.S. and 4MB SPI NOR Flash for Advantech boot loader
Graphics	HDMI	Up to 1920 x 1080
	VGA	Up to 1920 x 1080
	Graphics Engine	2 IPUs. OpenGL ES 2.0 for 3D, BitBlt for 2D and OpenVG 1.1
	HW Video Codec	Decoder: MPEG-4 ASP, H.264 HP, H.263, MPEG-2 MP, MJPEG BP Encoder: MPEG-4 SP, H.264 BP, H.263, MJPEG BP
Ethernet	Chipset	NXP i.MX6 integrated RGMII
	Speed	1 x 1000/100/10Mbps
RTC	RTC	Yes
Watchdog Timer		256-level timer interval, from 0 ~ 128 sec
Storage	SD/MMC	1
Expansion	Mini PCIe	1 Full-size with USB 2.0, PCIex1, and SIM holder
Rear I/O Connector	VGA	1
	HDMI	1
	RJ-45	1
	USB 2.0	6
	Serial	2 x 4wires RS232/RS485/RS422 DB9 4 x 2wires RS232 DB9
	Audio Jack	1 (Line-out, Mic-in)
	SD/MMC	1
Power	Power Requirement	+12V (8A)
	Power Type	DC-in
	Power Connector	1 x 12V DC-in, 1 x 4-pin ATX 12V
Environment	Operation Temperature	-5 ~ 55° C (23 ~ 131° F)
	Non-Operation Temperature	-20 ~ 70° C (-4 ~ 158° F)
	Operation Humidity	5% ~ 95%, non-condensing
System Physical Characteristics	Dimensions	200mm x 230mm x 50 mm w/ bracket 200mm x 190mm x 50mm w/o bracket

Board Diagram

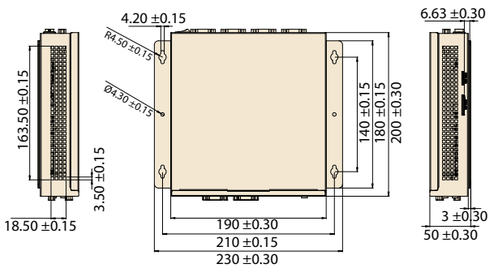


Ordering Information

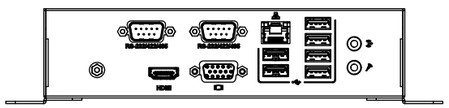
Part Number	System	CPU	DDR3	VGA	HDMI	LAN	USB	Serial	Wifi Module
EBC-GF06-00A2E	Yes	Quad	2GB	1	1	1	6	6	N/A

Dimensions

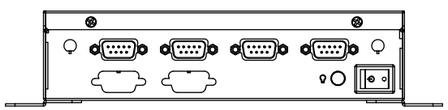
Unit: mm



Front View



Rear View



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