

Embedded Display Module EDM6070

Atmel AT91SAM9X35 Based Single Board Computer

BY

element14



Product Overview

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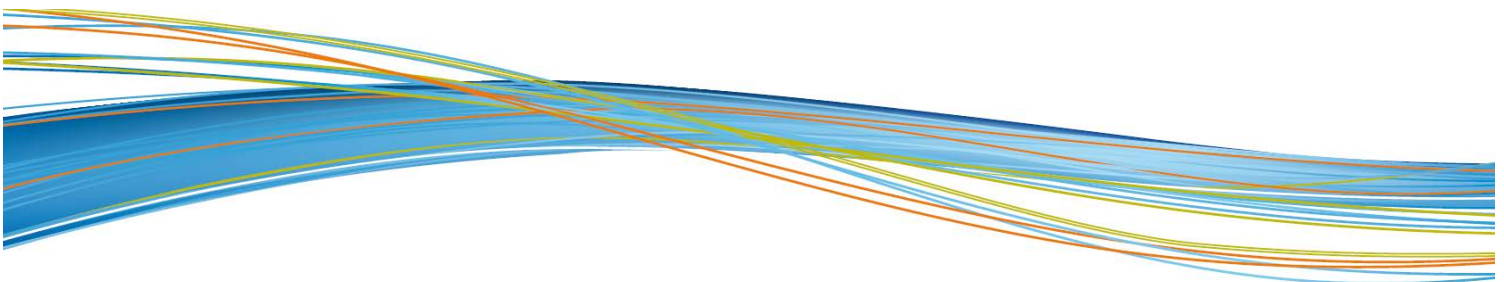


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Product Overview

Introduction

The EDM6070AR-01 is an ARM based Single Board Computer (SBC), designed & developed by element14. It comprises of a 7" LCD display and touch screen assembly, integrated with multi-functional embedded hardware based on Atmel's ARM9 AT91SAM9X35 industrial processor. The EDM6070AR-01 is a fully integrated Embedded Display Module solution for variety of embedded control HMI applications, ready to drop into your product with negligible integration effort, OR to just wrap an enclosure around, add a software application and become your finished product. EDM6070 is designed to fulfil the different requirements of various HMI applications including industrial control terminals, intelligent instruments, data acquisition and analysis, medical products, and network terminals.

EDM6070AR-01 consists of three parts: a MINI6935 CPU core module, an expansion board, and a 7-inch TFT LCD (800×480) with resistive touch screen.

- **MINI6935 CPU module** is an ARM embedded board, integrated with the ATMEL ARM926EJ-S-based processor AT91SAM9X35, operating at 400MHz frequency. The board has 128MB DDR2 SDRAM, 256MB NAND Flash, 4MB DataFlash, 4KB two-wire EEPROM.
- **The Base Board** expands the rich set of connectivity and user interface peripherals of Atmel AT91SAM9X35 including Ethernet and CAN interface. The board also has TFT touch screen LCD interface, USB hosts/device, Buzzer, RS232, RS485, Audio, GPIOs and SD card interface to allow large storage capabilities.

- **LCD Touchscreen Display** is a 4-wire resistive touchscreen TFT LCD display with a display resolution of up to 800x480 with 24-bit colour depth.

The EDM6070AR-01 includes Linux BSP and supports the Linux QT GUI (Graphical User Interface) and multiple file systems like, FAT, NTFS etc. It is also supplied with a Smart Home demo application (include smart-led controller, weather controller, video) and a number of example applications to give you a quick and easy start.

Kit Contents

The EDM6070AR-01 SBC is packed with the items listed below:

- ✓ MINI6935 CPU Process Board based on AT91SAM9X35 MCU
- ✓ Expansion Base Board
- ✓ 7" Touchscreen LCD Display
- ✓ Product DVD/CD includes BSP, demo application & technical documentation.

Optional Accessories (need to purchase separately):

- ✓ Serial Cable (Cross Over Female-to-Female)
- ✓ Ethernet Cable
- ✓ MicroUSB Cable
- ✓ Serial Interface Adapter
- ✓ Power Adapter (12V@1.25A)

Board Interface

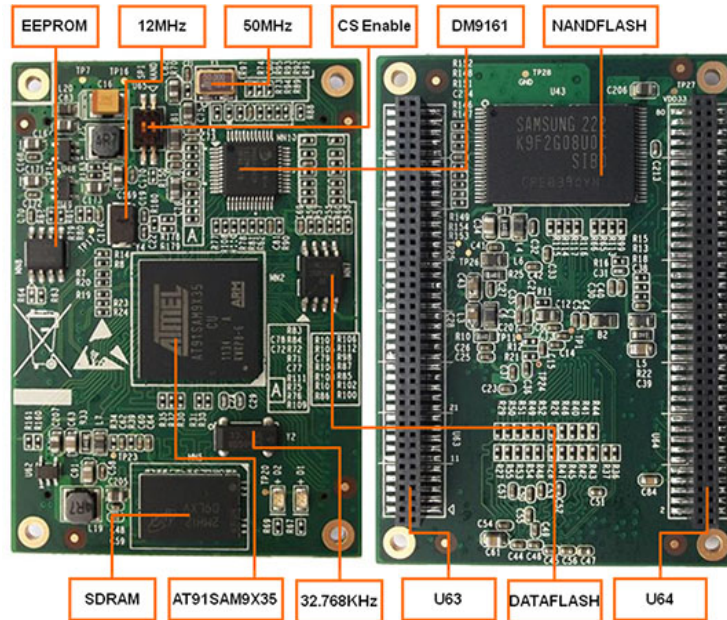


Figure 1: MIN6935 CPU Module

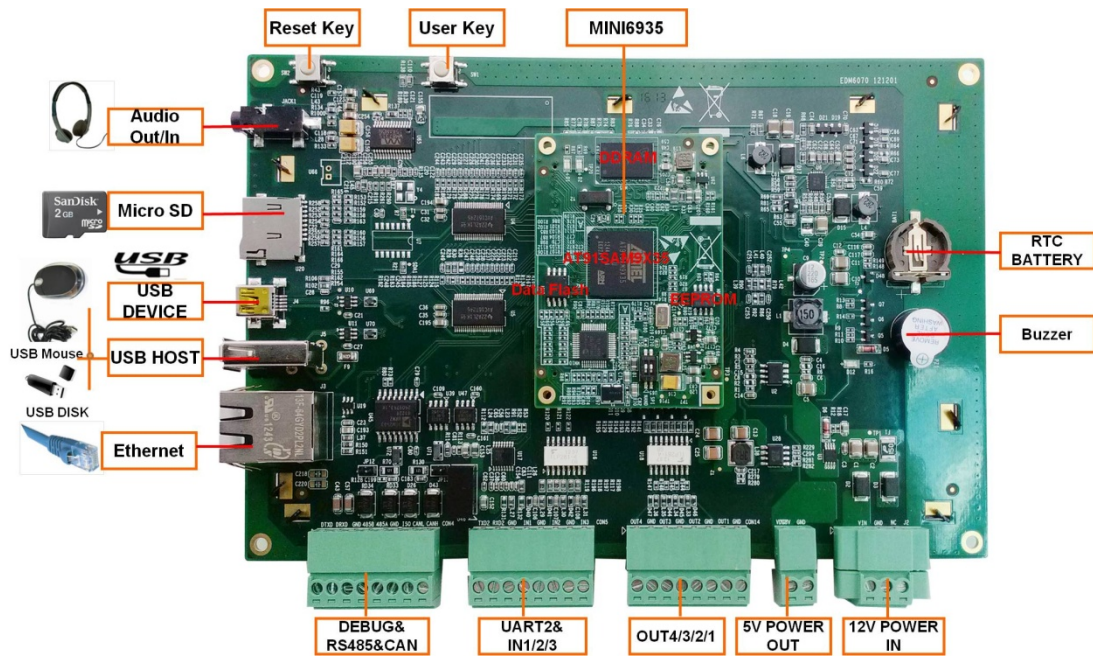


Figure 2: Base Board Interface with Mounted CPU Module

System Block Diagram

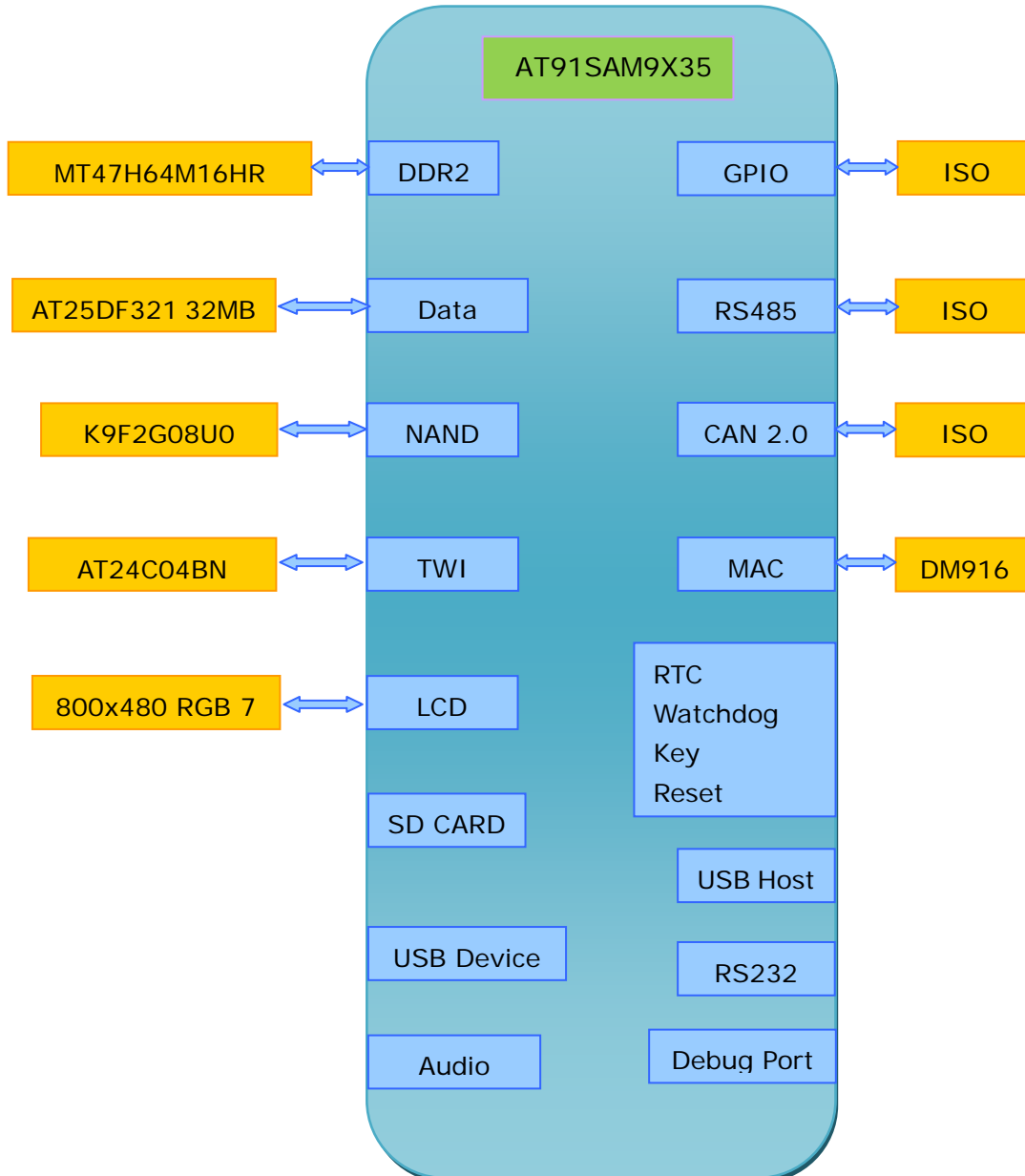


Figure 3: System Block Diagram

Physical Dimensions

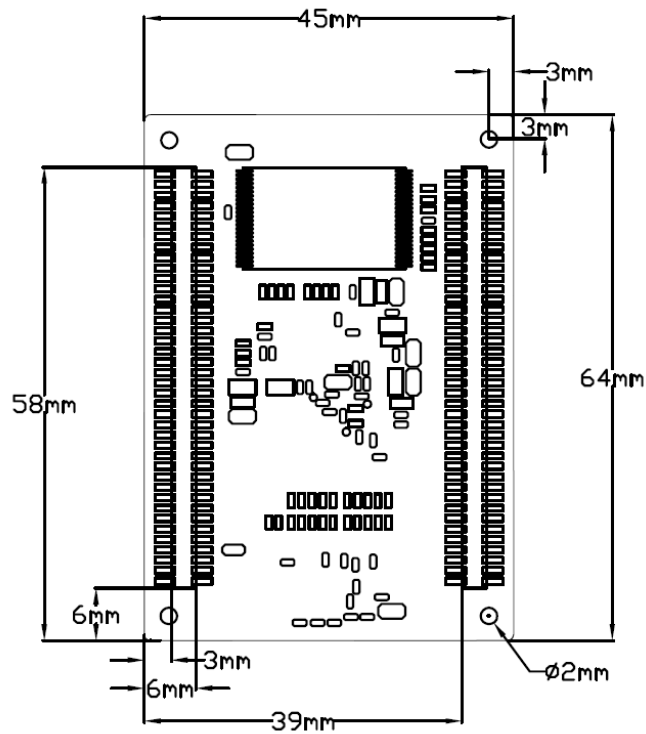


Figure 4: MINI6935 Dimensions

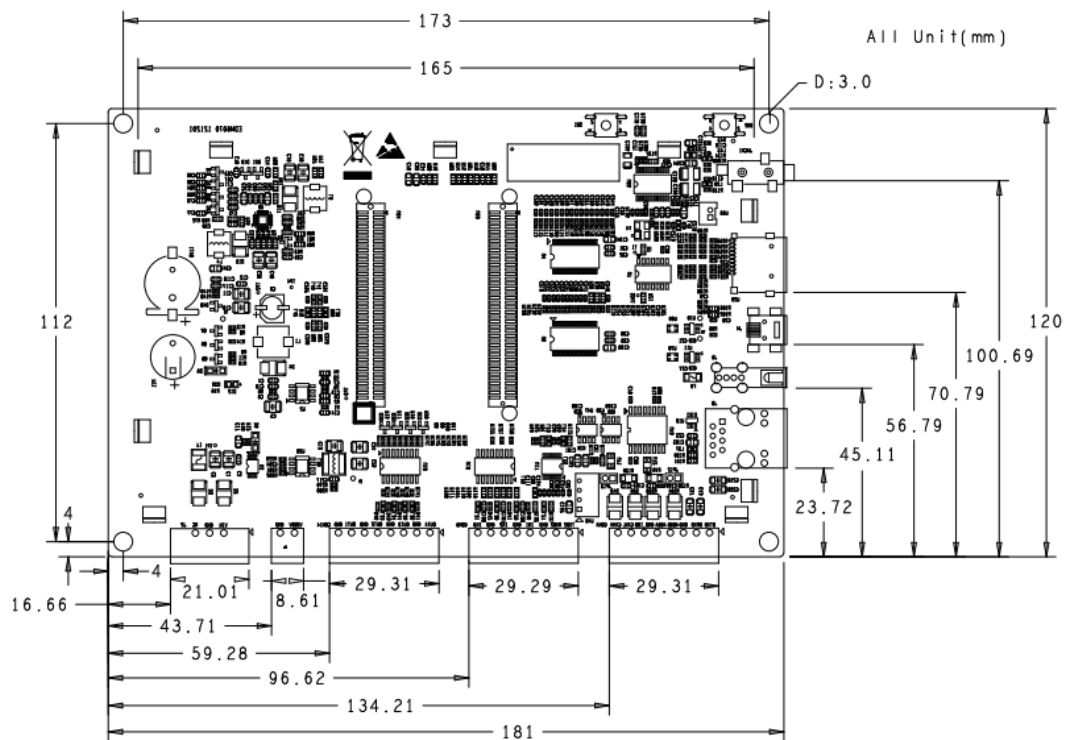


Figure 5: Expansion Board Dimensions

Hardware Features

CPU

- Atmel AT91SAM9X35 ARM9 32-bit processor, 400MHz
- 16KB Data cache, 16KB Instruction cache, Memory Management unit
- 64KB internal ROM and 32KB internal SRAM

On-Board Memory

- 128MB DDR2 SDRAM
- 256MB NAND Flash
- 4MB DataFlash

On-Board Interfaces

- 7" TFT LCD display, resolution of 800x480 with 24-bit color depth
- 10/100Mbps Ethernet interface, using DM9161CIEP chip, extendable via expansion board
- RS232 interface, 1 RS485 interface, 1 CAN interface
- USB Host high-speed interface
- USB Device interface
- Ethernet interface
- Three GPIOs as Input interfaces
- Four GPIOs as Output interfaces
- Audio output interface, supporting MP3 playback
- Debugging Interface, extendable via expansion board
- TF card slot

Others

- I/O interface LED indicator, 2 LED power indicators

- Buzzer
- I/O button
- Reset button
- RTC (no battery by default)
- Watchdog

Operational Parameters

- Operating Temperature: -10 °C ~ 70 °C
- Operating Humidity: 0% ~ 90% (Non-condensing)
- Power Supply: 12V@1.25A
- Electrical Standards: CE, FCC and CCC
- Product Dimensions: 181mm x 120mm

Software Features

BSP Packages

Types	Names	Descriptions
BIOS	Bootstrap	Serial Flash
	U-Boot	Serial Flash
		Supports kernel and file system programming through SAM-BA or USB flash drive (USB flash drive is recommended)
Kernel	Linux-2.6.39	ROM/CRAM/EXT2/EXT3/FAT/NFS/JFFS2/YAFFS2/UBIFS file systems
Device Drivers	Serial	Debugging and COM2 serial interface on CPU
	RTC	Internal RTC of AT91SAM9X35
	Ethernet	10/100M Ethernet driver
	Flash	NAND Flash and DataFlash driver
	LCD	LCD driver, 800x480 resolution
	Touch Screen	Touchscreen controller on CPU
	USB Host	USB Host driver
	Watchdog	Built-in watchdog driver
	SD Card	SD card driver
	CAN Bus	1 CAN bus
	RS-485	1 RS-485 bus
	LED	1 system status LED
	BEEP	1 buzzer driver
	Audio	WM8731EDS audio output driver
	Button	1 custom user button driver
GPIO	GPIO driver, 3 input channels, 4 output channels	
Root File System	UBIFS	Readable and writeable file system, supporting compression storage

Example Applications

The EDM6070AR-01 includes Linux BSP and supports the Linux QT GUI (Graphical User Interface) and multiple file systems like, FAT, NTFS etc. It is also supplied with a Smart Home demo application (include smart-led controller, weather controller, video) and a number of example applications to give you a quick and easy start. Given below is a example applications directory structure of the provided CR-ROM for easy navigation:

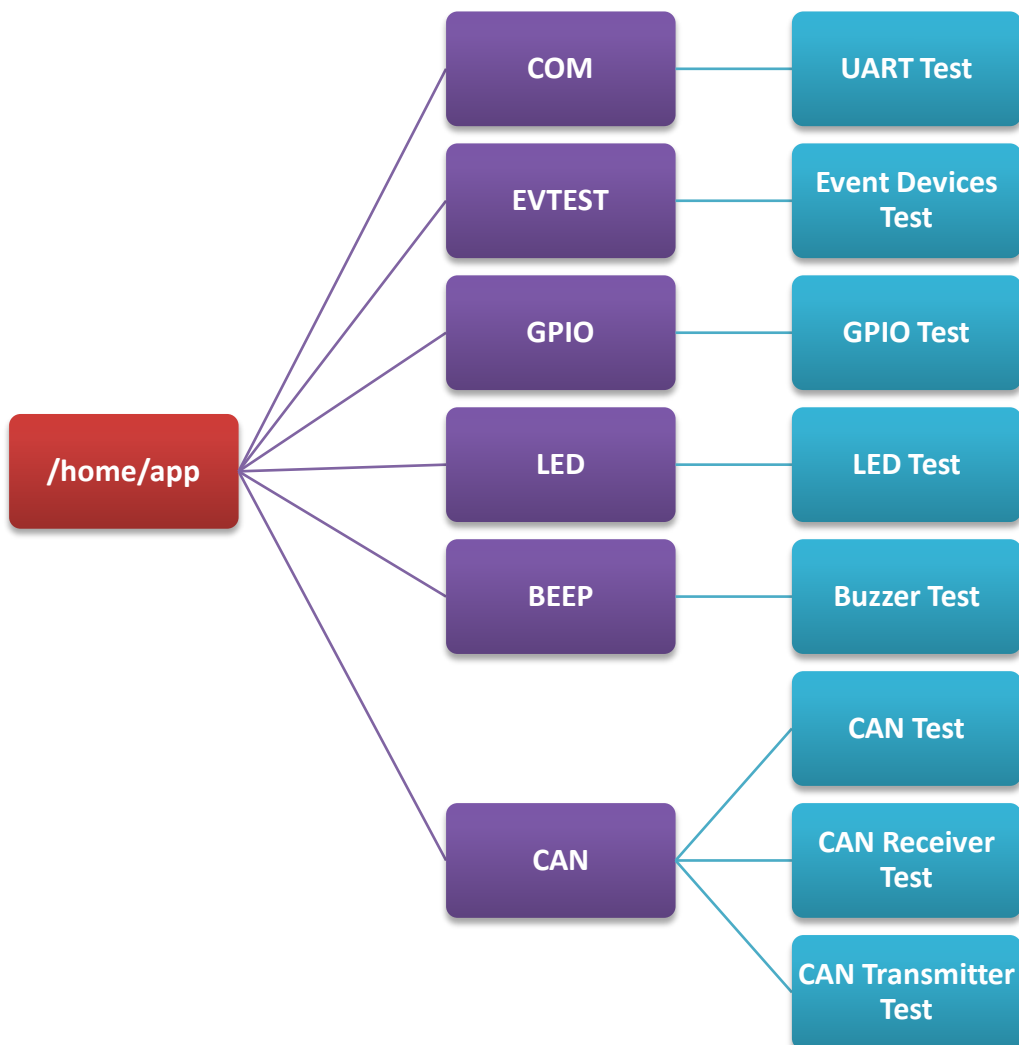


Figure 6: Example Applications (Directory Structure)