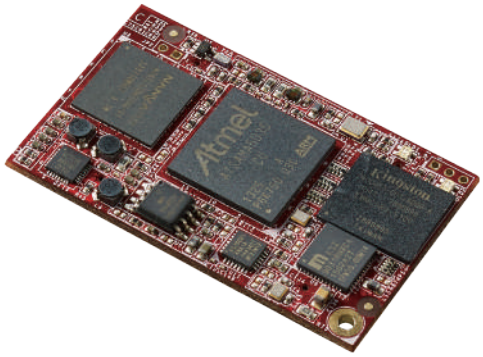
Linux-ready Cortex-A5 System on Module

M-A5D35



Features

- ATMEL arm Cortex-A5 ATSAMA5D35 536MHz CPU
- Linux kernel 5.10.x or up with file system
- Toolchain gcc 6.2.x+ glibc 2.24
- 512MB LPDDR2 SDRAM
- 8GB eMMC Flash and 8MB DataFlash for system backup
- Dual Ethernet interface, 1 x Gigabit and 1 x 10/100Mbps, with on-board PHY
- SPI / I2C / I2S / UART / USB / GPIO / CAN / SD
- Miniature size, 50 x 30 mm only
- Single 5VDC operation, less than 1.0W

H/W Specifications

CPU / Memory

- CPU: ATMEL Cortex-A5 ATSAMA5D35 536MHz w/ MMU
- SDRAM: 512MB, LPDDR2
- Flash: 8GB, eMMC
- DataFlash: 8MB, for system backup

Network Interface

- Type: 1 x Gigabit and 1 x 10/100Mbps Ethernet
- PHY: Micrel KSZ8081RNAIA (10/100Mbps)
- PHY: Micrel KSZ9031RNXCA (Gigabit)

UART Interface

- UART1: TX, RX, RTS, CTS (shared w/ CAN1 TX)
- UART2~4: TX, RX, RTS, CTS
- Signal Level: 3.3V

Common UART Parameters

- Baud Rate: up to 921.6Kbps
- Parity: None, Even, Odd, Mark, Space
- Data Bits: 5, 6, 7, 8
- Stop Bits: 1, 1.5, 2
- Flow Control: RTS / CTS, XON / XOFF, None

CAN Interface

- CAN1: TX (shared w/ UART1 CTS), RX
- CAN2: TX, RX

Console / Debug Ports

- Serial console port (UART interface)
- USB console port

USB 2.0 Host Interface

- Supports 480Mbps hi-speed mode
- Host ports: 2

SPI Interface

- Signals: MISO, MOSI, clock
- Chip Selects: 4, CS0~CS3

I2C Interface

- Signals: data, clock

I2S Interface

- Transmit Signals: data, clock, sync
- Receive Signals: data, clock, sync

SD 2.0 Interface

- Signals: cmd, clock, data0~3, card_detect
- SDHC Compatible

Watchdog Interface

- 1 x external watchdog timer input
- 1 x watchdog timer output

GPIO (General-purpose I/Os)

- No. of Pins: 21

Power Requirement

- Power Input: +5VDC
- Power Consumption: 0.75 Watts (typical)

General

- Dimensions (W x L): 50 x 30mm
- Pins: Total 50x2 pins, 1.27mm pitch Female header
- Mounting Hole: x 1, 2.0mm (M2) in diameter

S/W Specifications

Operation System

- Linux kernel 5.10.x or up with file system
- Supports bootup from eMMC or SD card
- Boot Loader : Barebox
- File System: EXT4/ETX3/ETX2, VFAT/FAT, NFS

Software Development

- Toolchain: gcc 6.2.x + glibc 2.24
- Supports in-place C/C++ code compilation

Package Management

- Package repository: Artila self-maintained repository
- Command: Using standard apt-get command

Popular Packages

- Web server: Apache/Nginx/Lighttpd
- Database: MySQL/SQLite3/PostgreSQL
- Script Language: PHP/Python/Perl/NodeJS
- Text editor: vim/nano/sed
- Administration: Webmin

Ordering Information

M-A5D35

- Linux-ready Cortex-A5 536MHz System on Module with 512MB SDRAM, 8GB eMMC Flash

M-A5D35 Starterkit

- Includes one M-A5D35 SoM and one carrier board with power circuitry, Ethernet, Serial port/USB and SD socket

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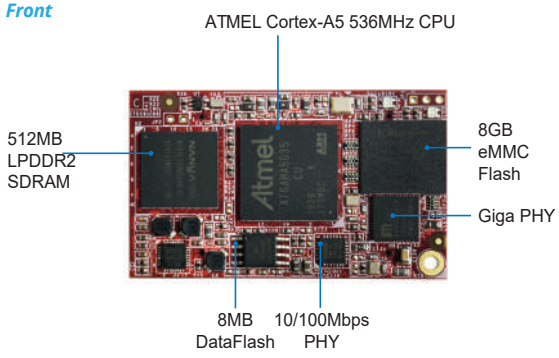
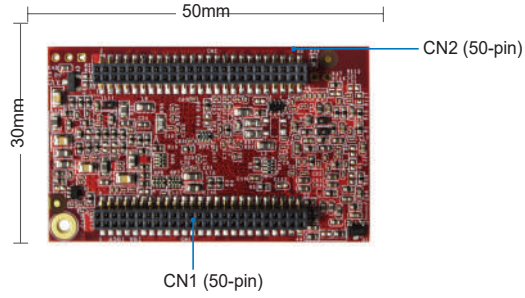
Front



Rear



Pin Assignment

CN1

	GLAN_RX2-	1	2	GLAN_RX2+
	GLAN_TX2-	3	4	GLAN_TX2+
	GLAN_RX1-	5	6	GLAN_RX1+
	GLAN_TX1-	7	8	GLAN_TX1+
	GLAN_GND	9	10	GLAN_GND
	LAN_TX+	11	12	LAN_LED
	LAN_TX-	13	14	GLAN_LED
	LAN_RX+	15	16	Debug_TX
	LAN_RX-	17	18	Debug_RX
Ready_LED	PD5	19	20	PE31/IRQ
	USB Device Data-	21	22	USB Device Data+
	USB Host_1 Data+	23	24	USB Host_2 Data+
	USB Host_1 Data-	25	26	USB Host_2 Data-
	PD7	27	28	PC22 or SPI_MISO
Buzzer	PD6	29	30	PC23 or SPI_MOSI
	N/A	31	32	PC24 or SPI_CLK
Wakeup	N/A	33	34	PC25 or SPI_CS0
H/W Reset	RST#1	35	36	PC26 or SPI_CS1
	PC29	37	38	PC27 or SPI_CS2
	PC30	39	40	PC28 or SPI_CS3
	PA30	41	42	PD19
	PA31	43	44	PD20
CLK	PD30	45	46	PD21
	GND	47	48	GND
	+5V	49	50	+5V

CN2

	BAT_In	1	2	+5V
	GND	3	4	GND
	PD14 or CAN0_RXD	5	6	PB14 or CAN1_RXD
	PD15 or CAN0_TXD	7	8	PB15 or CAN1_TXD
	PD16 or COM1_RTS	9	10	PB26 or COM2_CTS
	PD17 or COM1_RXD	11	12	PB27 or COM2_RTS
	PD18 or COM1_TXD	13	14	PB28 or COM2_RXD
	PE23 or COM3_CTS	15	16	PB29 or COM2_TXD
	PE24 or COM3_RTS	17	18	PE16 or COM4_CTS
	PE25 or COM3_RXD	19	20	PE17 or COM4_RTS
	PE26 or COM3_TXD	21	22	PE18 or COM4_RXD
	PA18 or I2C_Data	23	24	PE19 or COM4_TXD
	PA19 or I2C_CLK	25	26	PC16 or I2S_TX_CLK
	PD0 or SD_CMD	27	28	PC17 or I2S_TX_Sync
	PD1 or SD_Data0	29	30	PC18 or I2S_TX_Data
	PD2 or SD_Data1	31	32	PC19 or I2S_RX_CLK
	PD3 or SD_Data2	33	34	PC20 or I2S_RX_Sync
	PD4 or SD_Data3	35	36	PC21 or I2S_RX_Data
	PD9 or SD_CLK	37	38	PD31 or Audio CLK
	PA27 or SD_CD	39	40	PA0
	PA20	41	42	PA1
	PA21	43	44	PA2
	PA22	45	46	PA3
	PA23	47	48	PA26
	RST#2	49	50	NA

Note: pin 7 also can be used as COM1_CTS

Dimension