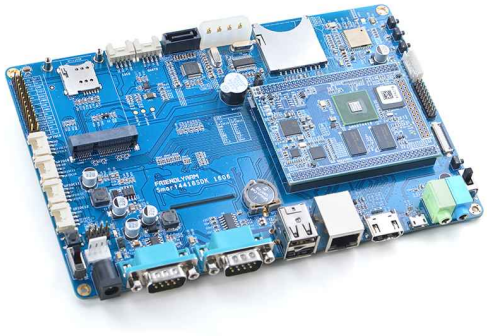
FriendlyELEC Smart4418 CPU board (8G eMMC,1G RAM) + SDK V1606



EAN CODE

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Introduction

- The Smart4418 CPU board is a quad core Cortex A9 CPU board designed and developed by FriendlyElec for industrial applications. As a successor of the Smart210 CPU board it uses the Samsung Quad Core Cortex-A9 S5P4418 SoC with dynamic frequency scaling up to 1.4GHz. The standard Smart4418 CPU board has 1GB DDR3 RAM and 8GB eMMC. It has the AXP229 PMU enabling software power off/on and wake-up functions. In addition its Gbps Ethernet and audio jack make it suitable for various industrial applications.
- The Smart4418 CPU board has 2.0mm pitch double row pin headers(P1, P2 and P4) containing 174 pins in total. These pins contain most popular interface pins. By default we have P1 and P2 soldered on the board and leave P4 for users' applications. It works with various FriendlyElec LCDs e.g. 3.5"LCD, 4.3"LCD, 5"LCD, 7"LCD and 10.1"LCD.
- In addition we have a Smart4418/6818SDK carrier board which enables the Smart4418 CPU board's Gbps Ethernet.In addition FriendlyElec will soon release a Samsung Octa Core Cortex-A53 S5P6818@1.4GHz based board which is pin to pin compatible to the Smart4418 CPU board.
- For more details about the Smart4418 SDK carrier board V1606 refer to Smart4418SDK 1606.

Features

- CPU: Samsung S5P4418 Quad Core Cortex-A9, with dynamic frequency scaling from 400M Hz to 1.4G Hz
- PMU Power Management Unit: AXP228. it supports software power-off and wake-up functions.
- DDR3 RAM: 1GB 32bit DDR3 RAM
- Ethernet: Gbps Ethernet(RTL8211E) with unique MAC
- eMMC: 8GB
- Audio: 1 x audio codec chip, 1 x onboard Microphone and 1 x audio jack
- LED: 1 x Power LED, 2 x GPIO LED
- Others: onboard thermistor

- PCB Dimension: 74 x 55 mm, Six-Layer
- Power: DC 5V, up to 1.2A
- OS/Software: u-boot, Android5.1/4.4, Debian8, ubuntu-core
- 3 x 2.0mm pitch double row pin header, 174 pins in total:
  - USB 2.0 - Host x1, OTG x1
  - Video output/Display - RGB Parallel I/F (24-bit), LVDS and HDMI 1.4a
  - Video input - DVP Camera interface, ITU-R BT 601/656 8-bit and MIPI-CSI
  - Audio input - Microphone
  - Audio output - Audio jack (with headset detection) and HDMI audio
  - Ethernet - 10/100/1000Mbps Ethernet x 1
  - ADC - CPU internal ADC, 7 channels, 12-bit, range: 0 ~ 1.8V
  - External interface - SDIO/MMC x2, SPI x2, I2C x3, UART x5, PWM x3, GPIOs x24
  - Others - Power key input, RESET input, RESET output, RTC battery input

Pin Specification

P1				P2			
Pin#	Name	Pin#	Name	Pin#	Name	Pin#	Name
1	VDD_5V	2	DGND	1	UART0_TX	2	UART0_RX
3	RTC_BATT	4	GPIOB8	3	UART1_TX	4	UART1_RX
5	NRESETIN	6	GPIOC17	5	UART2_TX	6	UART2_RX
7	MMC0_CMD	8	MMC1_CMD	7	UART3_TX	8	UART3_RX
9	MMC0_CLK	10	MMC1_CLK	9	UART1_nCTS	10	UART1_nRTS
11	MMC0_D0	12	MMC1_D0	11	CAM0_D0	12	CAM0_D1
13	MMC0_D1	14	MMC1_D1	13	CAM0_D2	14	CAM0_D3
15	MMC0_D2	16	MMC1_D2	15	CAM0_D4	16	CAM0_D5
17	MMC0_D3	18	MMC1_D3	17	CAM0_D6	18	CAM0_D7
19	MMC0_CD	20	GPIOB24	19	CAM0_PCLK	20	CAM0_VSYNC
21	PWRKEY	22	SPI1_CS/GPIOC10	21	CAM0_HYNC	22	GPIOB14
23	GPIOB28/UART4_RX	24	SPI1_MISO/GPIOC11	23	GPIOB16	24	HDMI_TX1P
25	GPIOB29/UART4_TX	26	SPI1_MOSI/GPIOC12	25	HDMI_TX0P	26	HDMI_TX1N
27	GPIOB30	28	SPI1_CLK/GPIOC9	27	HDMI_TX0N	28	HDMI_TXCP
29	GPIOC15	30	GPIOC16	29	HDMI_TX2P	30	HDMI_TXCN
31	GPIOB31	32	GPIOB18	31	HDMI_TX2N	32	HDMI_HPD
33	GPIOD1/PWM0	34	I2C0_SCL	33	I2C1_SD	34	I2C1_SC

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35	GPIOC13/PWM1	36	I2C0_SDA	35	USB_OTG_ID	36	SPI0_CS
37	USB_HOST_D-	38	I2C2_SCL	37	USB_OTG_D-	38	SPI0_MISO
39	USB_HOST_D+	40	I2C2_SDA	39	USB_OTG_D+	40	SPI0_MOSI
41	LCD_B0	42	LCD_B1	41	VBUS_5V	42	SPI0_CL
43	LCD_B2	44	LCD_B3	43	LVDS_CLKP	44	GPIOB25
45	LCD_B4	46	LCD_B5	45	LVDS_CLKM	46	DGND
47	LCD_B6	48	LCD_B7	47	LVDS_Y0P	48	LAN_MDI1_N
49	LCD_G0	50	LCD_G1	49	LVDS_Y0M	50	LAN_MDI1_P
51	LCD_G2	52	LCD_G3	51	LVDS_Y1P	52	LAN_MDI0_N
53	LCD_G4	54	LCD_G5	53	LVDS_Y1M	54	LAN_MDI0_P
55	LCD_G6	56	LCD_G7	55	LVDS_Y2P	56	LINK_LED
57	LCD_R0	58	LCD_R1	57	LVDS_Y2M	58	SPEED_LED
59	LCD_R2	60	LCD_R3	59	LVDS_Y3P	60	DGND
61	LCD_R4	62	LCD_R5	61	LVDS_Y3M	62	HP_DETECT
63	LCD_R6	64	LCD_R7	63	HP-R	64	HP-L
65	LCD_VSYNC	66	LCD_HSYNC	65	LAN_MDI2_P	66	LAN_MDI3_P
67	LCD_CLK	68	LCD_DE	67	LAN_MDI2_N	68	LAN_MDI3_N
69	DGND	70	BOOT_CS	69	Mic-P	70	Mic-N

P4

Pin#	Name	Pin#	Name
1	MIPICSI_DP0	2	GPIOD8/PPM
3	MIPICSI_DN0	4	GPIOC7
5	MIPICSI_DP1	6	GPIOC8
7	MIPICSI_DN1	8	GPIOC24
9	MIPICSI_DP2	10	GPIOC28
11	MIPICSI_DN2	12	GPIOC0
13	MIPICSI_DP3	14	GPIOC1
15	MIPICSI_DN3	16	GPIOC2
17	MIPICSI_DPCLK	18	GPIOC3
19	MIPICSI_DNCLK	20	DGND
21	GPIOB9	22	ADC1
23	GPIOB26	24	ADC3
25	GPIOC4	26	ADC4
27	AliveGPIO3	28	ADC5
29	PWREN_SYS	30	ADC6

31		GPIOC14/PWM2			32		ADC7			
33		NRESETOUT			34		DGND			

Note:

1. VDD_5V: Supply voltage, range:4.7 ~ 5.6V. We recommend a 5V/1.2A(MAX) power. You can lower the clock to decrease the power consumption. When the clock is lowered by 200MHz the power consumption roughly decreases 0.5W .
2. BOOT_CS: Boot chip selection. When it is not connected or pulled up the board boots from eMMC otherwise it boots from SD card
3. NRESETIN: Reset input. Activated when it is low. A reset signal is input to CPU from this pin
4. NRESETOUT: Reset output. Activated when it is low. CPU's reset signal outputs to this pin.
5. RTC_BATT: RTC's input, direct connection to a 3V power source. If the CPU board is powered on the RTC seat is powered by 3.3V external power otherwise when the CPU board is not powered on it is powered by the RTC battery.
6. ADC1~7: CPU internal ADC, 12-bit, 7 channels 1~7, range:0 ~ 1.8V
7. 10/100M Ethernet mode: LAN_MDI1_N/P=RX-/+, LAN_MDI0_N/P=TX-/+, four pins connected to RJ45
8. 10/100/1000M Ethernet mode: LAN_MDI0_N/P~LAN_MDI3N/P, all eight pins connected to RJ45
9. For more details refer to our carrier board's design:Smart210/4418 SDK
    - For more details about the Smart4418 SDK carrier board V1606 refer to Smart4418SDK 1606.
10. Smart4418 Schematic in pdf

Wiki: http://wiki.friendlyarm.com/wiki/index.php/Smart4418

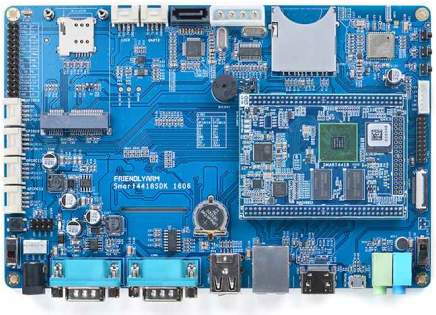
github:https://github.com/friendlyarm

Smart4418 1512 Schematic : Smart4418-1512-Schematic.pdf

Smart4418 1608 Schematic: Smart4418-1608-Schematic.pdf

Smart4418 1512 Dimension: dimension (Smart4418-1512-Dimension(dxf).zip)

Smart4418 1608 Dimension: dimension (Smart4418-1608-Dimension(dxf).zip)



Zubehör

Art.-Nr.	Name
124149	Kühlkörper Alu (zwei Stück) mit Thermalkleber für Banana Pi, FriendlyElec, Lemaker
124479	Flash SecureDigitalCard (SD) 8GB *EMTEC* microSDHC Class10 UHS-I 85mb/s
124768	Flash SecureDigitalCard (SD) 32GB *Kingston* microSDHC - Class 4
85227	\Patchkabel USB2.0, 2m, A(St)/MicroB(St), schwarz, Synergy 21,
114470	Patchkabel USB2.0, 2m, A(St)/MicroB(St), textil/rot, Synergy 21,
114471	Patchkabel USB2.0, 2m, A(St)/MicroB(St), textil/schwarz, Synergy 21,
114472	Patchkabel USB2.0, 2m, A(St)/MicroB(St), textil/weiß, Synergy 21,
134827	FriendlyELEC NanoPc-T3 - 1GB/8GB OctaCore A53 64-bit ARM Board
134872	FriendlyELEC NanoPi TTL To RS232 - Serielle Schnittstelle
134873	FriendlyELEC LCD1602 Keypad - I2C interface, User Keys
134875	FriendlyELEC UART GPS NEO-7M Module ,Matrix GPS Module
134876	FriendlyELEC USB2LCD-01
134879	FriendlyELEC 7" inch capacitive touch LCD(S701)
134880	FriendlyELEC X710 LCD with Capacitive Touch
134881	//FriendlyELEC 4.3 inch resistive touch LCD(P43)
134892	FriendlyELEC NanoPc-T3 zbh. weißes Gehäuse