PV8900-CORE Full Function TCC8900/TCC8901/TCC8902 CPU Module Specification

1. Overview:

PV8900-CORE CPU Module is designed by Shanghai Povell Electronic Technologies Co., Ltd. in 2010, this CPU module build-in power supply circuits, crystal oscillator, DDR2 SDRAM, NandFlash and Telechips high performance ARM11 CPU: TCC8900, it also can compatible with TCC8902 and TCC8901. PV8900-CORE CPU CORE has high performance and good quality, It's your good choice for embedded product design.

2. Features:

- Total 240pin, 08mm pin pitch: 6 power supply pins, 32 GND pins and 202 signal pins, all high speed signal pins, include difference signal and clocks, are separated by GND for good signal EMI/EMC.
- There are 3.0V, 1.8V and 1.42V power supply circuit build-in CPU Module to simplify the power supply circuits design in external main board, they are carefully PCB layout for low power noise and low ripple.
- The CPU Module also support external 1.8V and 1.42V power supply directly input, in case customer use PMIC solution in external main board.
- CPU Module support CPU switch and run at 720MHz and 508MHz dynamically.
- The default size of DDR2 SDRAM and NandFlash is 256MB, customer can order for other size.
- CPU Module PCB is carefully designed, total 8 layers: 3 GND layers, one power layer, 4 signal layers, each signal layer have one GND layer companied, the bottom layer is GND layer, the top side will be covered with shield cover for best EMI/EMC performance.
- The DDR2 SDRAM signals are good PCB Layout according to the DDR2 Layout rule to make the hardware stable and reliability.
- The different signals of LVDS, HDMI, SATA and USB are carefully be layout according to high speed different signal Layout rule for good performance.
- The 3 GND layers and shield cover can be used as good path for heat dissipation, the heat dissipation performance is very good.
- The most difficult circuits of DDR2 SDRAM and power supply circuits are designed and PCB

Layout in CPU Module, so the main board's design will be simple and easy and make it easy to succeed at first time to save money.

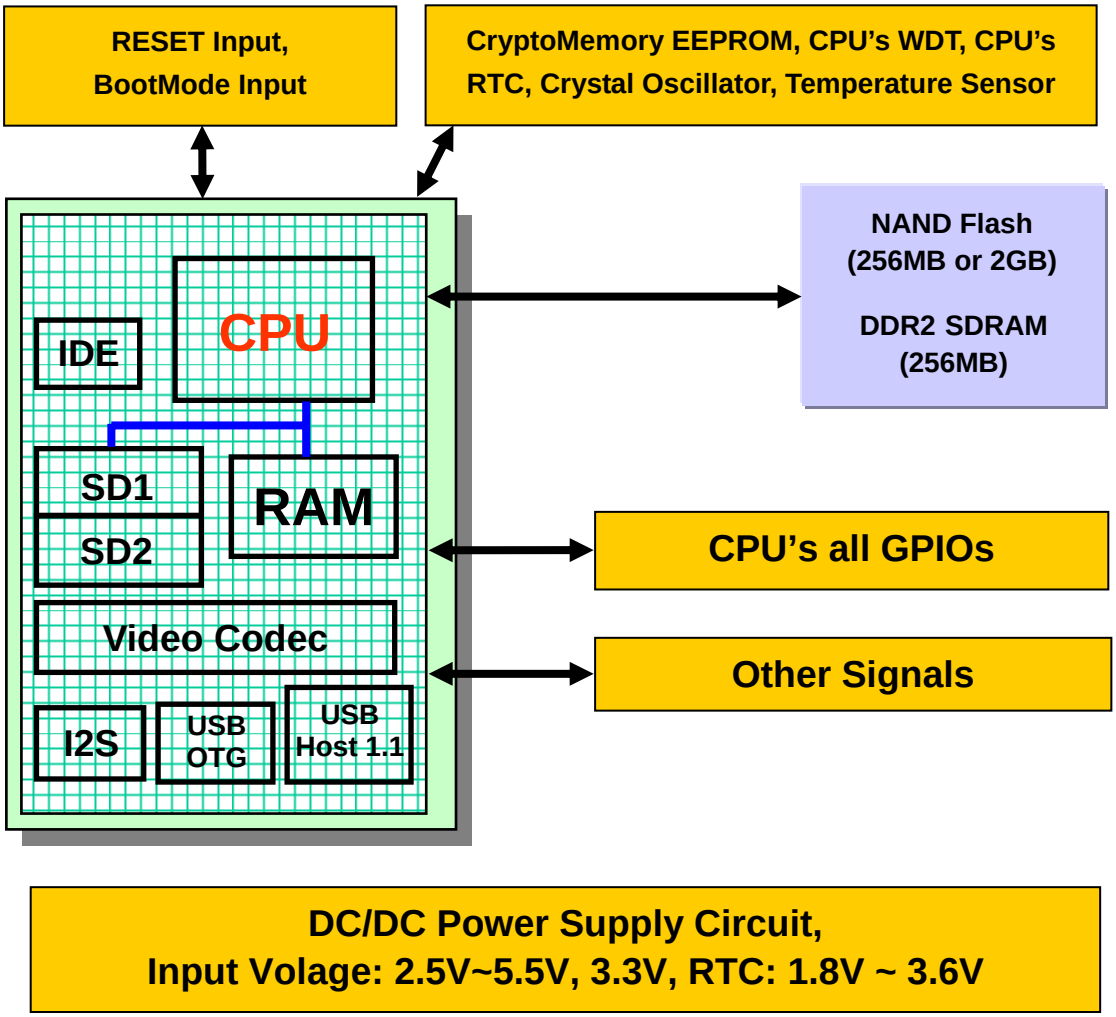
- 4 layers PCB design of main board is enough by using CPU Module, it will save main board's BOM cost and speed up time to market, so the CPU Module is one product, which is worthy of confidence.
- PV8900-CORE CPU Module has powerful function, good performance, high extensibility and flexibility, good stable and reliability, it's your good choice.
- PV8900-CORE CPU Module support Linux 2.6.28、Windows CE 6.0、Android 2.1 OS.

3. Hardware Specifications:

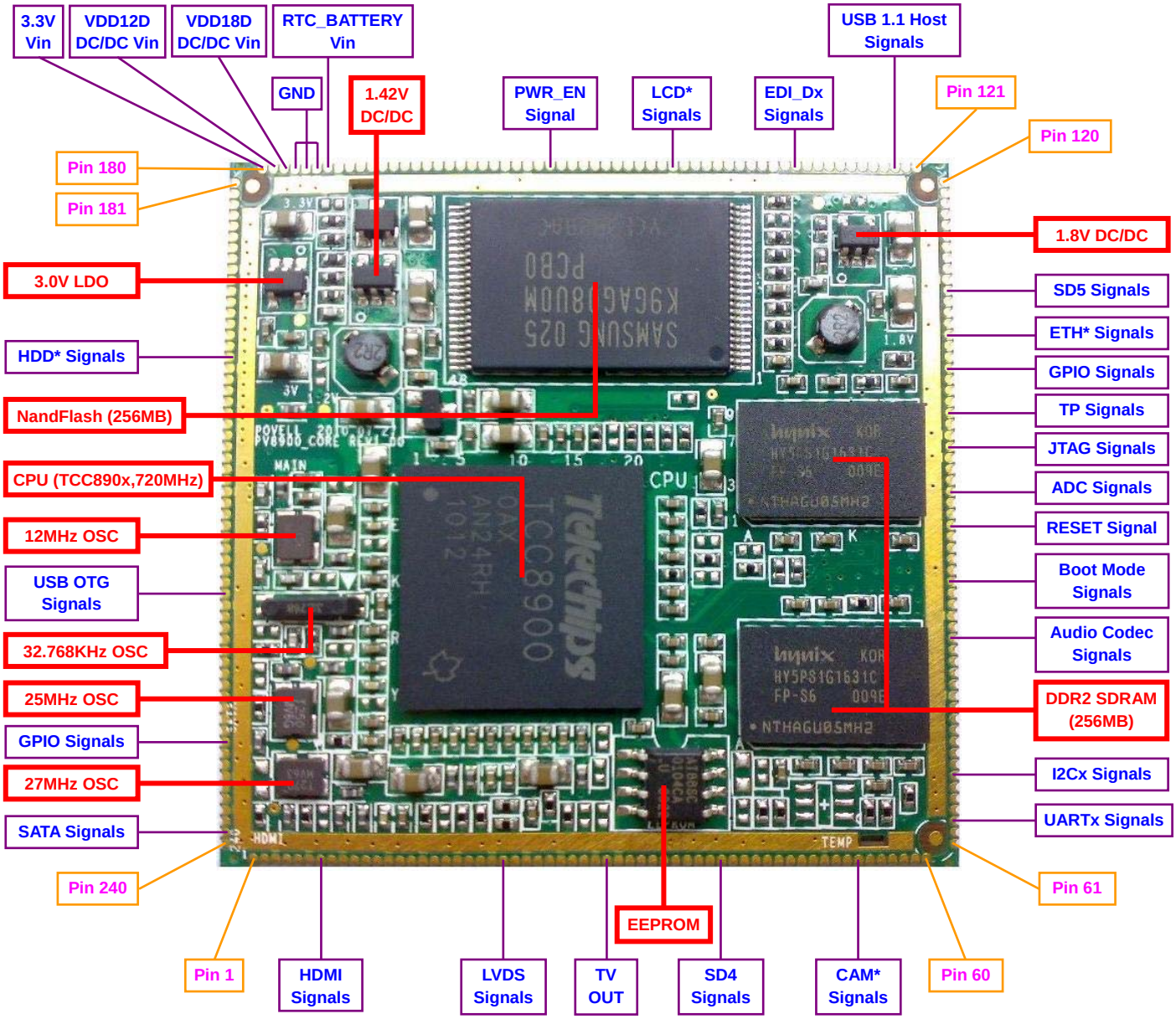
CPU		Telechips TCC8900, up to 720MHz@1.42V. 65nm CMOS Process ARM1176JZF-S architecture processor. Full HD (1920x1080) video decoding (H.264, MPEG 1/2, MPEG 4 , VC-1, Real Video 8/9/10, H.263). 1280x720 video encoding (H.263, MPEG 4, H.264). Support 2D/3D graphic acceleration (ARM's Mali200) with Open VG 1.1 and Open GL ES 1.1/2.0, also support Overlay Mixer function. Open OS Support: Linux 2.6.28, Windows CE 6.0 and Android 2.1.	PV8900-CORE CPU Module also can support TCC8902 and TCC8901 chips
Memory		256MB DDR2 SDRAM (32bit data bus)	
		2GB NandFlash (8bit data bus, can support SLC & MLC)	Option for 256MB
On Board Power Supply Circuits		External 3.3V input power directly supply to CPU, NandFlash, EEPROM and temperature Sensor.	
		On board 2.5V~5.5V (input power) DC/DC convert to 1.8V or directly 1.8V external input to power supply to DDR2 SDRAM and CPU	These two conditions need two different hardware configuration.
		On board 2.5V~5.5V (input power) DC/DC convert to 1.42V or directly 1.42V external input to power supply to CPU CORE	These two conditions need two different hardware configuration.
		On board 3.3V LDO convert to 3.0V to power supply to CPU's OSC, DAC and RTC	
		RTC Backup Battery input power supply to CPU's RTC, this power supply will automatic be switched with 3.0V to power supply to CPU's RTC.	
On Board Crystal Oscillator Circuits		12MHz main clock crystal oscillator circuit	
		27MHz video clock crystal oscillator circuit	
		25MHz SATA clock crystal oscillator circuit	
		32.768KHz RTC clock crystal oscillator circuit	
Available Interface Signals (which are input	Storage	One SD/SDHC interface signals (SD4 port)	
		One CF card interface signals (same as IDE interface signals), shared with EHI (External Host Interface) signals	
		One SATA interface signals (about 1.5GHz speed)	
	USB	One USB 2.0 High Speed OTG interface signals	

to and/or output from PV8900-CORE CPU Module		One USB 1.1 Full Speed Host interface signals	
	Video Output	One FULLHD 1080P HDMI 1.3 interface signals (about 1.5GHz speed)	
		One 24bit color TTL LCD interface signals One 4-wire touch panel interface signals	
		One Single channel 18bit/24bit LVDS interface signals Inverter interface signals	
		One TV Out signal	
	Video Input	Generic CCIR601/656 CMOS Sensor/TS input interface signals	
	Audio	One I2S Audio Codec interface signals	
		GPIOs for audio amplifier control signals	
		One SPDIF output signal	
	EDI	One 8bit data bus EDI interface signals mainly for Ethernet MAC	
	Wireless	SD5 interface signals, mainly for IEEE 802.11 b/g/n WIFI network	
	UARTs	Four UART ports (TTL level) (CPU's UART0, UART1, UART4, UART5)	
	Key	One input analog signal for Key Matrix input. One input analog signal to CPU	
	I2C	Two Channels of I2C signals	
	IR In	One channel of Remote IR(Infra-Red) Receiver input signal. One GPIO to control two LEDs (Green LED and Red LED) on/off	
	JTAG	One JTAG interface signals	
	BUZZER	One GPIO to control the BUZZER on/off	
	RESET & WDT	RESET input signal GPIO act as clear signal of External WDT	
	GPIOs	GPIOs for lighting LEDs	
	Boot Mode	Interface signals for CPU Boot Mode setting	
Dimensions		52mm(length) x 50mm(width) x 4.5mm(thickness) with shied cover	
Package		SMD type with half stamp holes on PCB quad side, total 240 pin, 0.8mm pin pitch.	This CPU module is designed and packaged to be processed in an automatic assembly line
Operation Temperature		Default: 0°C to 70°C， Can Support -40°C to 85°C if customer order	
Power supply		CPU's IO, NandFlash and others: < 200mA@3.3V CPU CORE: < 1.3W@(2.5V~5.5V) or < 800mA@1.42V (720MHz) DDR2 SDRAM: < 1.2W@(2.5V~5.5V) or < 600mA@1.8V CPU's RTC (RTC Backup Battery): < 50uA@(1.8V~3.3V)	
Target Application		STB, PVR, PMP, Portable Navigation, Car AV / AVN, Jukebox	
Warranty		One year	
Delivery		Within 2-3 working days after payment confirmed	

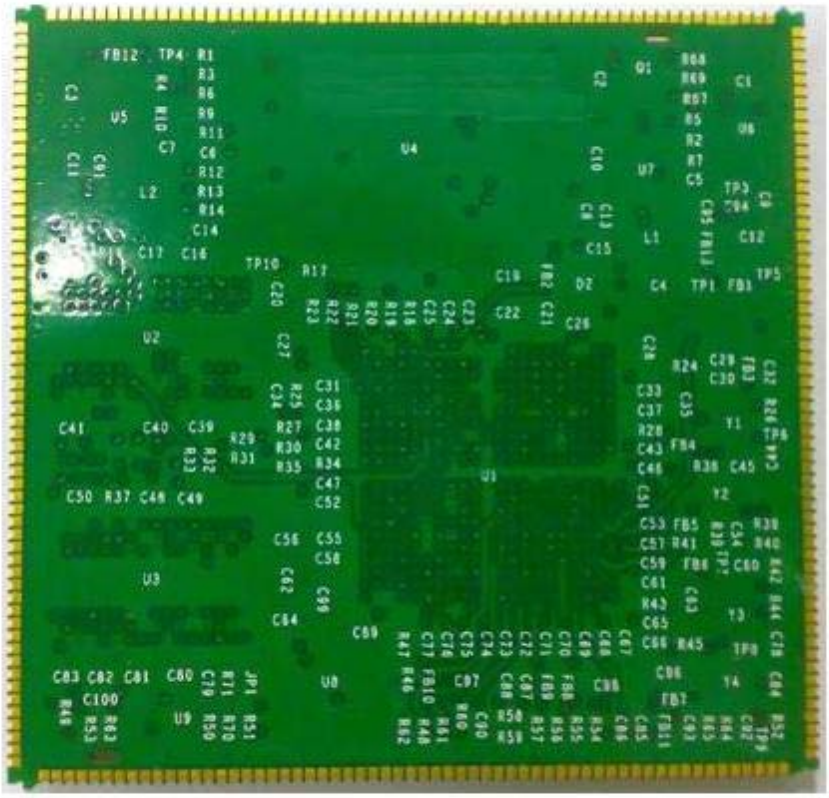
4. System Diagram:



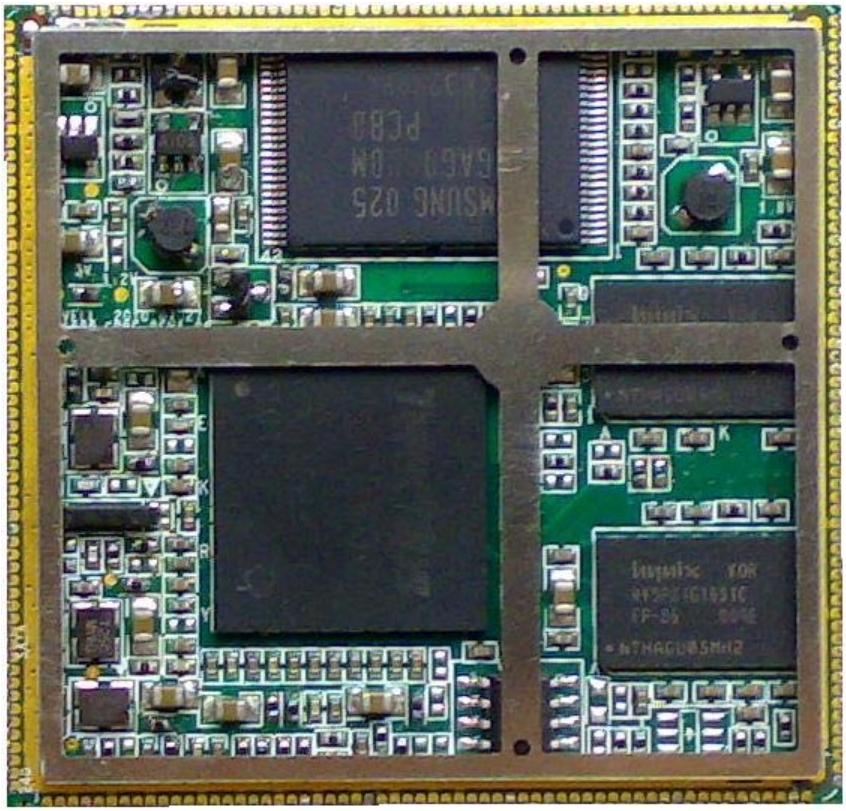
5. Top side of PV8900-CORE CPU Module:

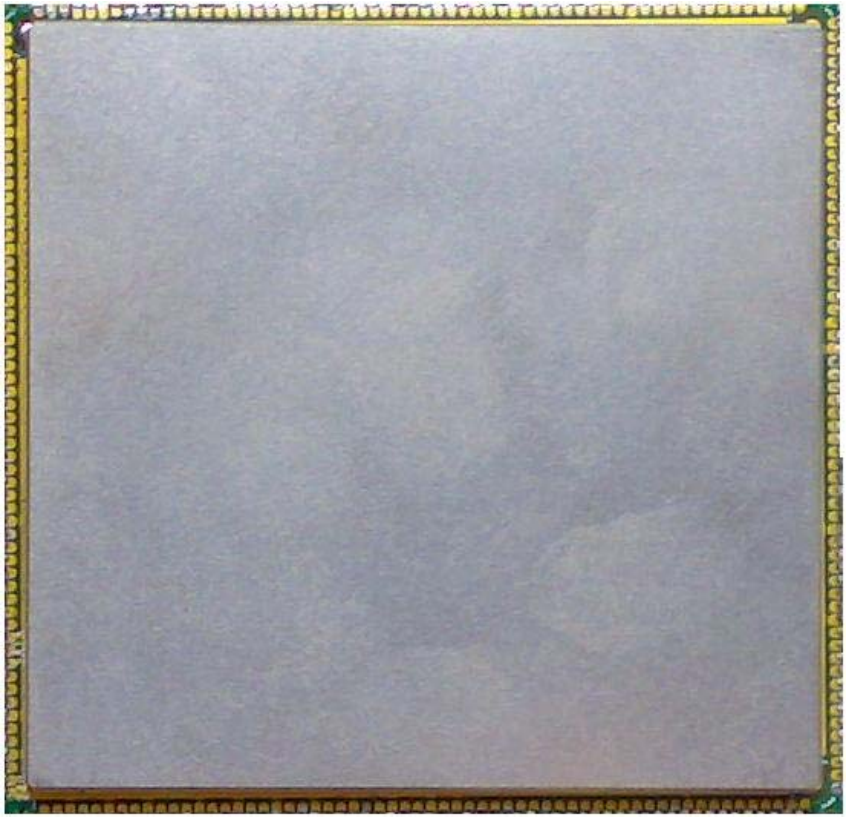


6. Bottom side of PV8900-CORE CPU Module:



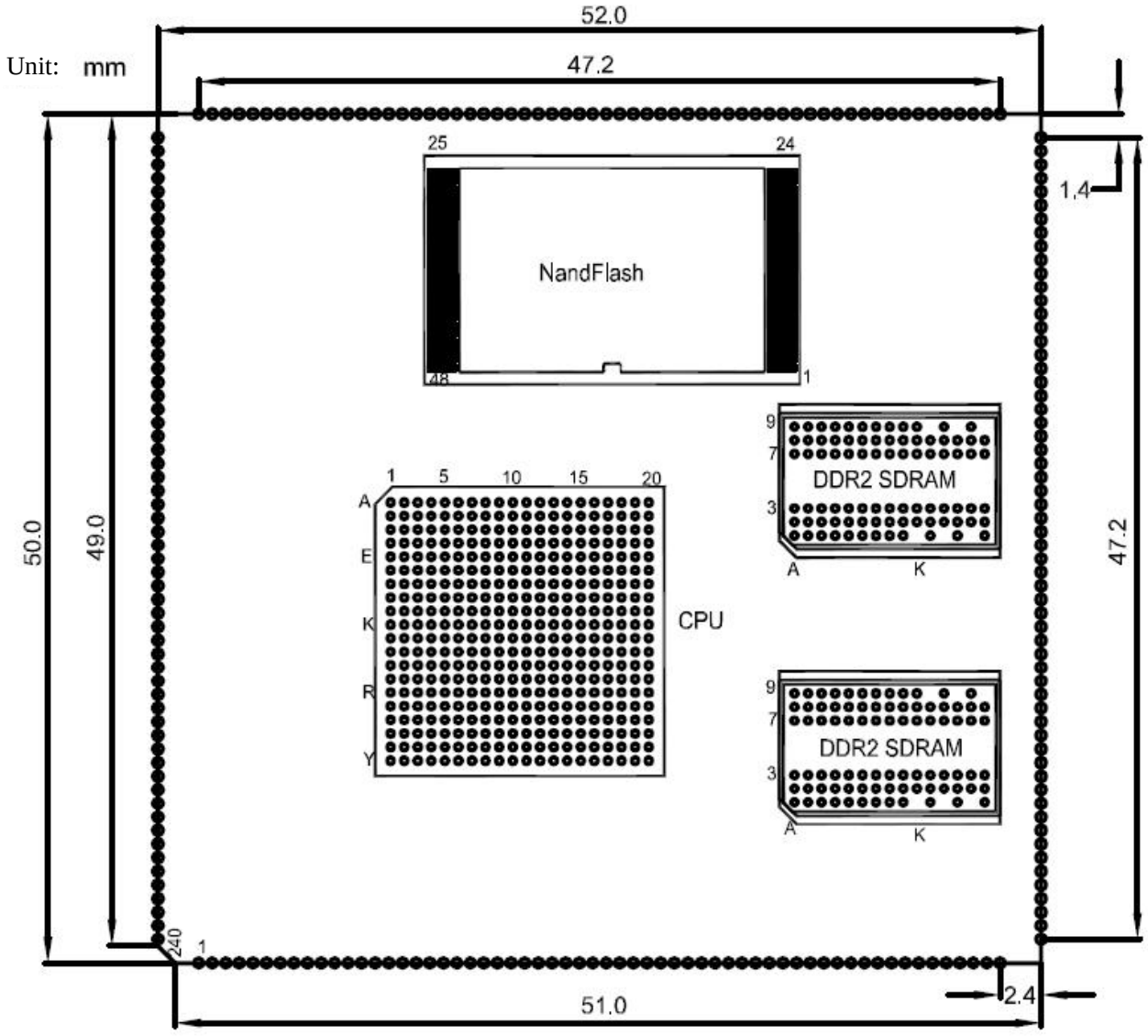
7. Top side of PV8900-CORE CPU Module with Shield Cover:





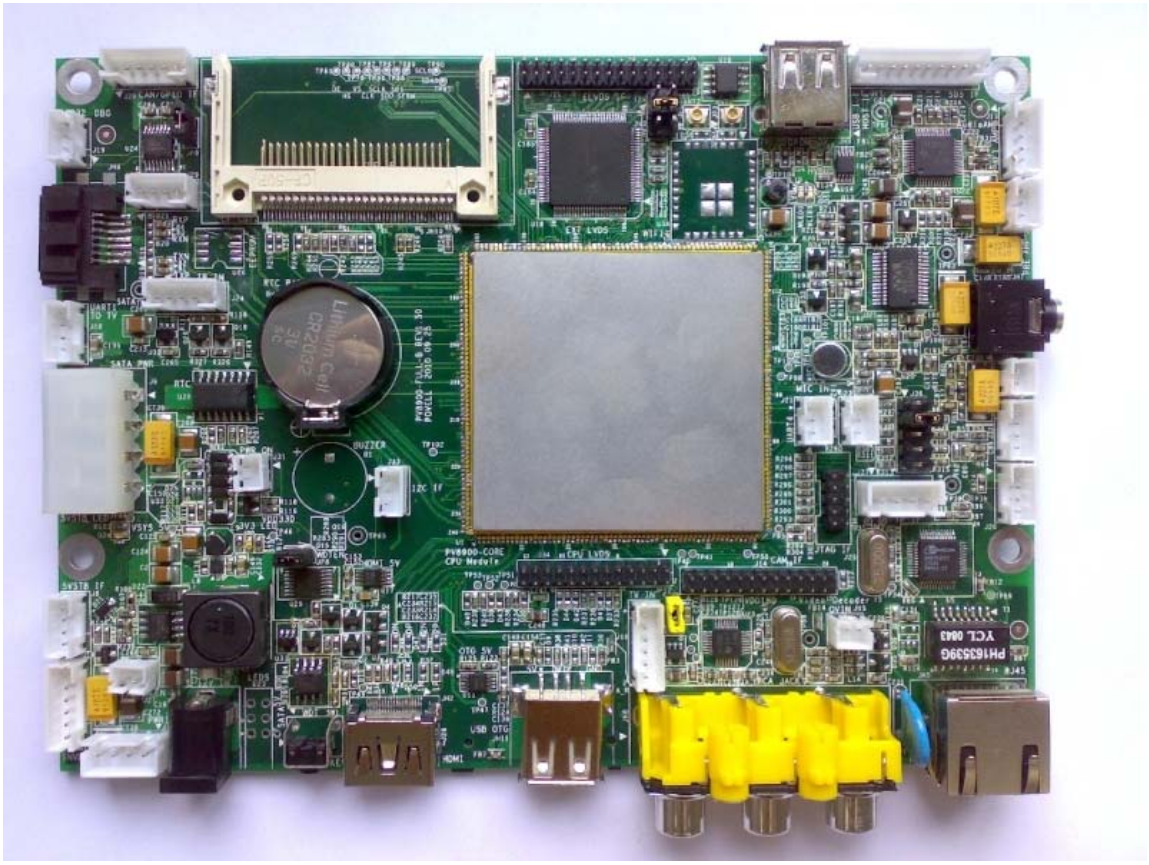
8. Dimension (0.8mm pin pitch)(Package Information):

52mm * 50mm * 4.5mm (thick with shield cover)



9. PV8900-FULL-B Board with PV8900-CORE CPU Module without Shield Cover:

10. PV8900-FULL-B Board with PV8900-CORE CPU Module with Shield Cover:



11. PV8900-FULL-B Board with PV8900-CORE CPU Module display on 8” LCD Panel:

12. PIN Description

Please refer to “PV8900-CORE CPU Module Pin Definition.xls” document for detail information.

13. Electrical Specification

Please refer to “PV8900-CORE CPU Module Pin Definition.xls” and “TCC8900_FULL_SPEC_V1[1].09.pdf” documents for detail information about IO’s electrical specification.

14. Software

Linux 2.6.28、Windows CE 6.0、Android 2.1