
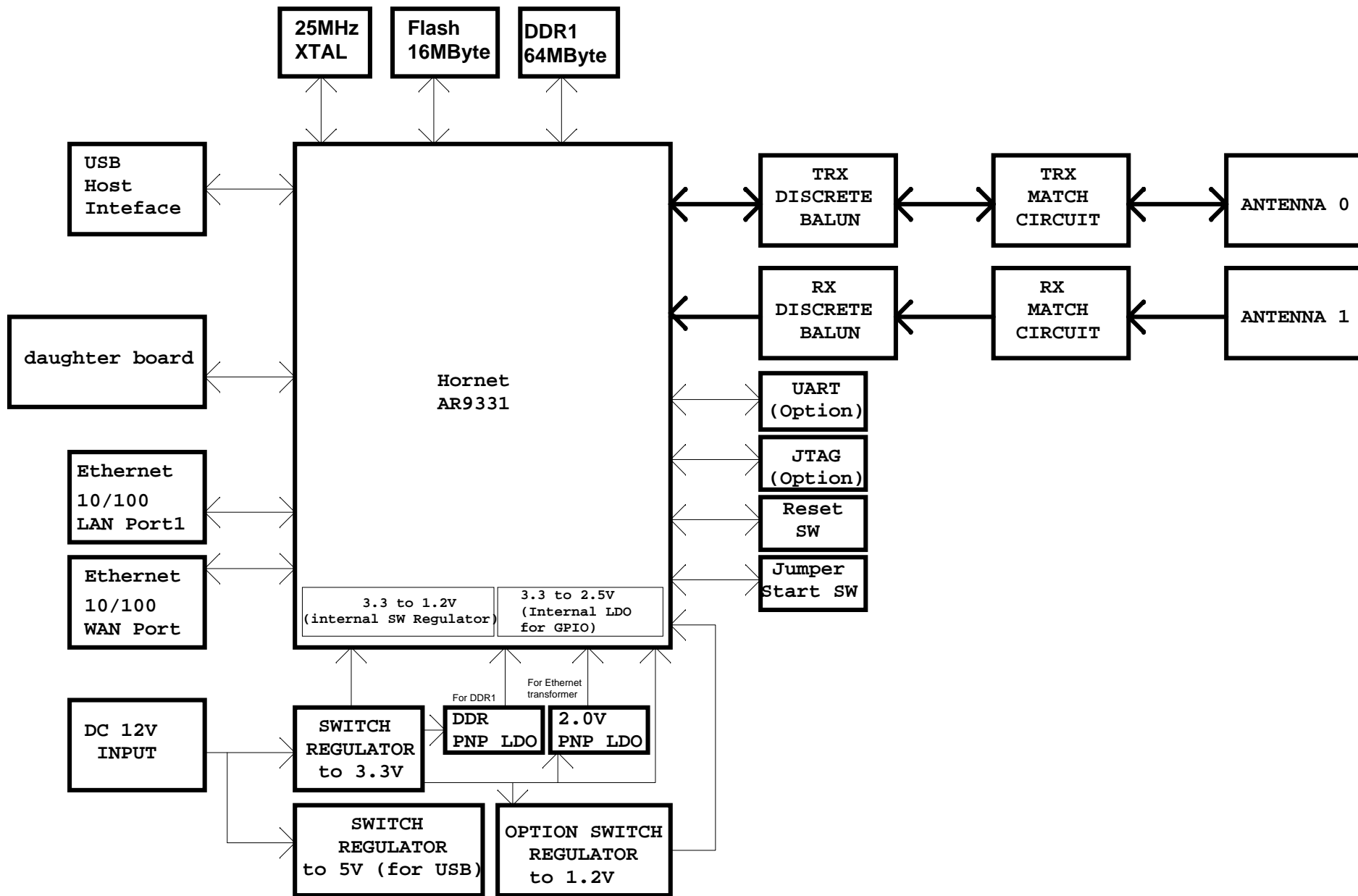



DATE	REVISION NUMBER	INITIALS	DESCRIPTION
May 18, 2012	245-01951-050		1.Add U1 FLASH SOP16-300MIL PCB FOOTPRINT,DLE Flash_WP ON FLASH S08-200MIL 2.DEL R11 0OHM, CHANGE NET Flash_WP TO GPIO24
May 20, 2012	245-01951-060		1.Rename USB_LED silkscreen to ROUTER_LED
Nov 7, 2012	245-01951-070		1.Del 1.2V power for RT8010. 2.JTAG 2x4pins change to 2x5pins,add 9pin-led4,10pin-led5. Del JUMP START net and switch.
Mar 20, 2013	245-01951-080		1.Change LED2 connect to 3.3V 2.Add U2 74LVCI08 connect to RESET_B and RESET_ROUTER net, add R199,R200 100K 3.Change LIST: a)Change VR1 from 1117-33vc to 1117-50vc. Remove VDD33_LDO, Add 5V_LDO. b)J1-pin1 connect to VDD33, J1-pin2 connect to 5V_LDO c)Remove D2 in USB part, connect 5V direct to ESD_5V d)Add C178. Change C31 to NL. e)Add CON1 and CON2 for production test (add R6,R8) f)Del C130, Add C50, C51; Del C168, Add C52,C59; Del C188, Add C62,C63; Del C146, Add C60, C61 g)Add D2,D3,D4,D5,D6, D7 for Ethernet ESD protection.
Mar 28, 2013	245-01951-090		1. C127, C50, C51, C52, C59, C62, C63, C60, C61 change the correct symbol ;DNL (noload) C64, C76, C77, C78, C81, C82, C79, C80 2. D2 has not been removed. Connect 5V directly to ESD_5V; DNL C31 and load C178 with a 1206 10uF ceramic cap.

DRAGINO MS14

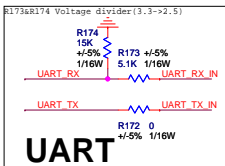
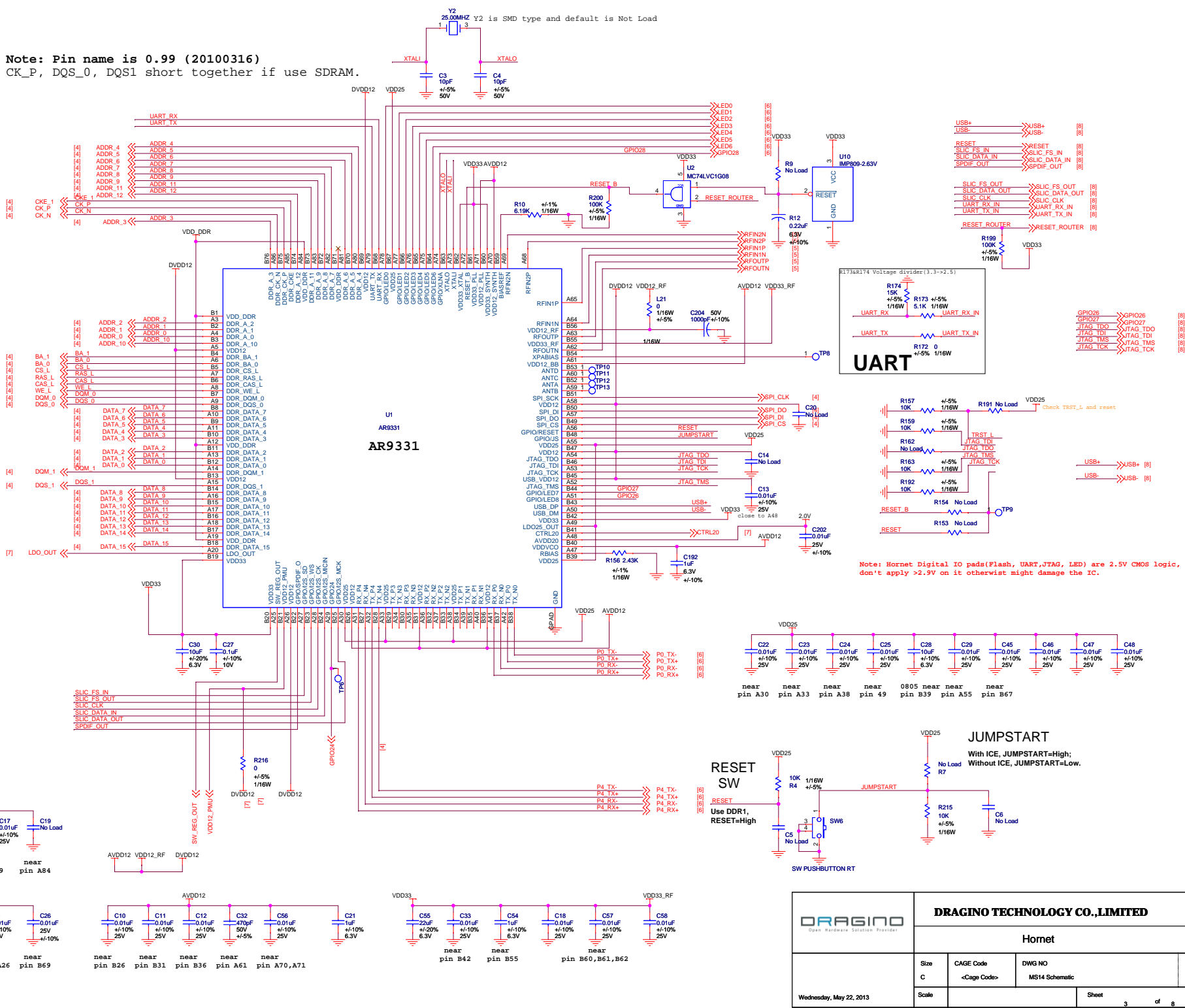
802.11 b/g/n wifi sensor node reference design

 <small>Open Hardware Solution Provider</small>	DRAGINO TECHNOLOGY CO.,LIMITED			
	Title and revision history			
	Size C	CAGE Code <Cage Code>	DWG NO MS14 Schematic	Rev 2.2
Wednesday, May 22, 2013	Scale	Sheet		1 of 8



 <small>Open Hardware Solution Provider</small>	DRAGINO TECHNOLOGY CO., LIMITED		
	Block Diagram		
Size	CAGE Code	DWG NO	Rev
C	<Cage Code>	MS14 Schematic	2.2
Scale			Sheet 2 of 8
Wednesday, May 22, 2013			

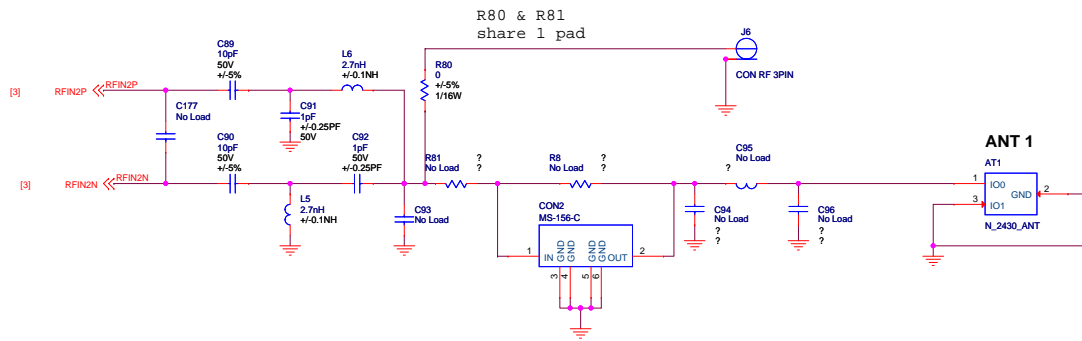
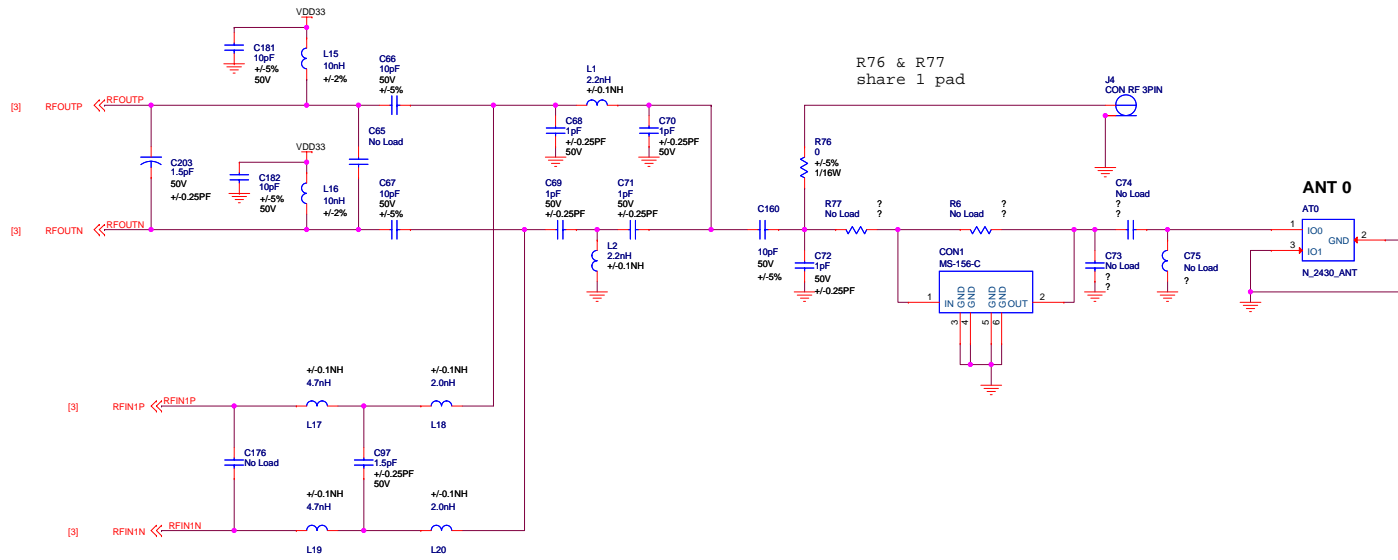
Note: Pin name is 0.99 (20100316)
 CK_P, DQS_0, DQS1 short together if use SDRAM.




Note: Hornet Digital IO pads(Flash, UART, JTAG, LED) are 2.5V CMOS logic, don't apply >2.9V on it otherwise might damage the IC.

DRAGINO Open Hardware Solution Provider		DRAGINO TECHNOLOGY CO., LIMITED	
Homet			
Size	CAGE Code	DWG NO	Rev
C	<Cage Code>	MS14 Schematic	2.2
Scale	Sheet		3 of 8
Wednesday, May 22, 2013			

L15, L16 recommend using low DCR
 Psat power current 150mA~180mA

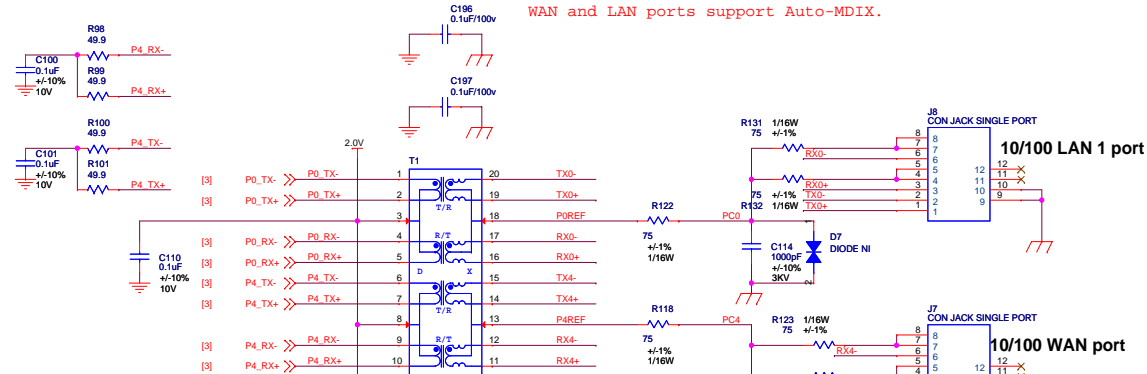
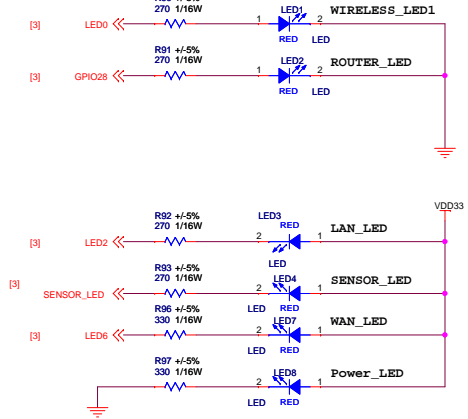


 <small>Open Hardware Solution Provider</small>	DRAGINO TECHNOLOGY CO., LIMITED		
	RF		
Size	CAGE Code	DWG NO	Rev
C	<Cage Code>	MS14 Schematic	2.2
Scale		Sheet	5 of 8
Wednesday, May 22, 2013			

Trade-offs:

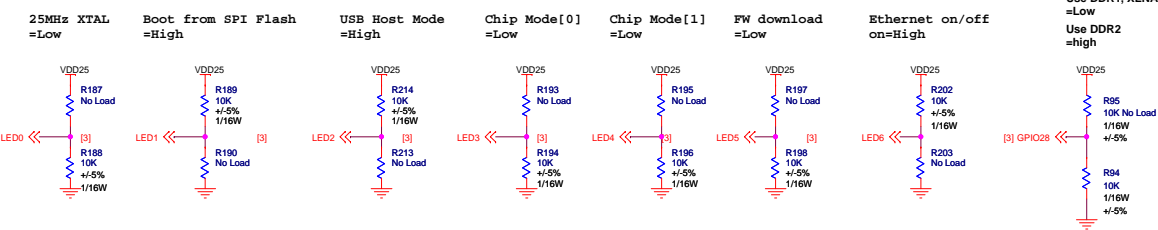
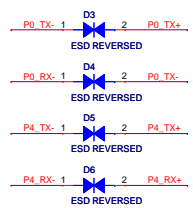
Nets name LED0, LED1, LED2, LED3, LED4, LED7 are also for Boot-strap during power on.
 To avoid wrong voltage applied on the IO pin from LED, these GPIOs should be source current only.
 The rest LEDs are using sink current mode to reduce the Hornet internal 2.5V LDO loading (thermal).

LEDs are 0805 SMT type because of plastic optical guide.

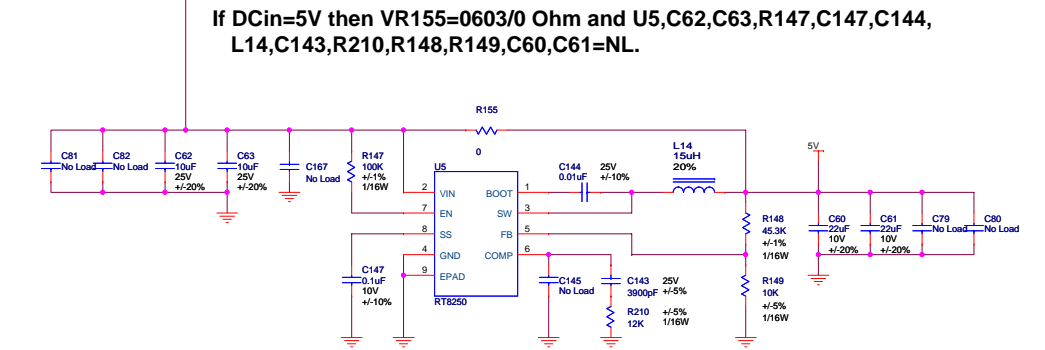
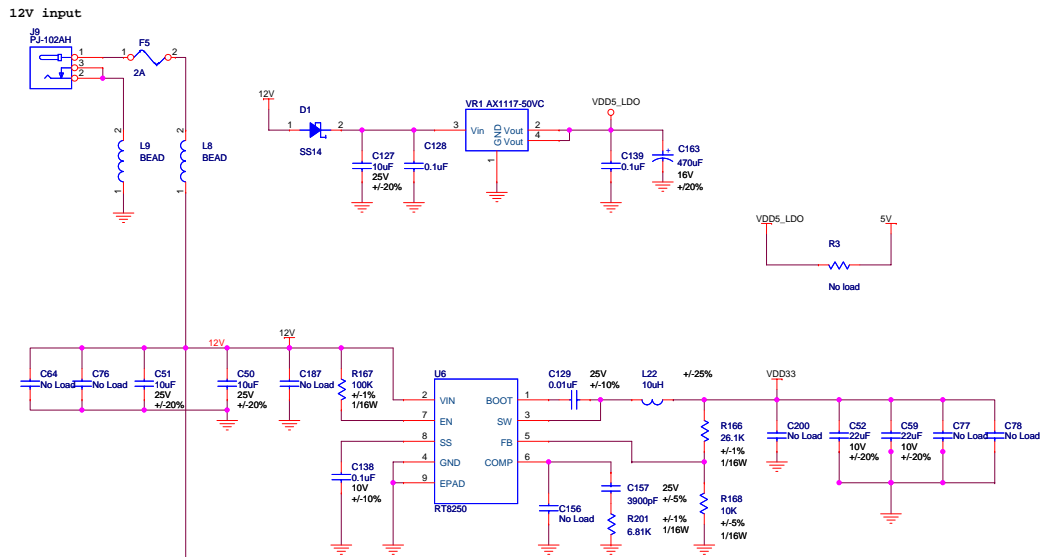


WAN and LAN ports support Auto-MDIX.

HIGH VOLTAGE

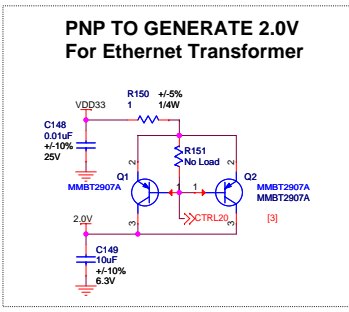


	DRAGINO TECHNOLOGY CO., LIMITED		
	Ethernet Interface & LED		
Size	CAGE Code	DWG NO	Rev
C	<Cage Code>	MS14 Schematic	2.2
Scale		Sheet	6 of 8
Wednesday, May 22, 2013			

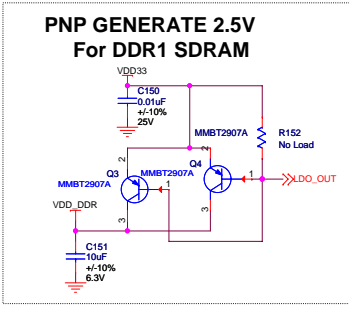


If DCin=5V then VR155=0603/0 Ohm and U5,C62,C63,R147,C147,C144, L14,C143,R210,R148,R149,C60,C61=NL.

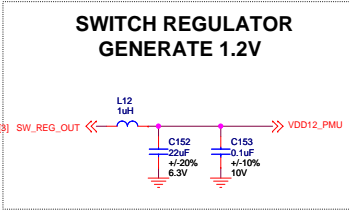
SWITCH REGULATOR GENERATE DC5V FOR USB



100mA x number of RJ45 ports for 10Mbps;
40mA x number of RJ45 ports for 100Mbps.

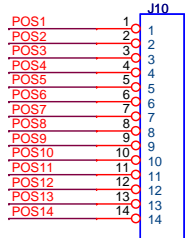


Caution on Vce_sat



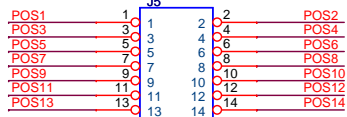
	DRAGINO TECHNOLOGY CO., LIMITED			
	Power			
Size	CAGE Code	DWG NO	Rev	
C	<Cage Code>	MS14 Schematic	2.2	
Scale		Sheet	7 of 8	
Wednesday, May 22, 2013				

SENSOR OUT



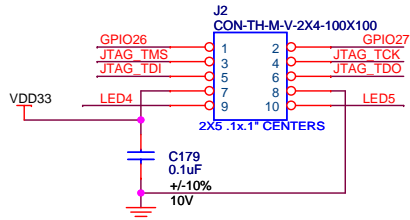
CON-TH-M-V-1X14-100X100
1X14 .1x.1" CENTERS

SENSOR



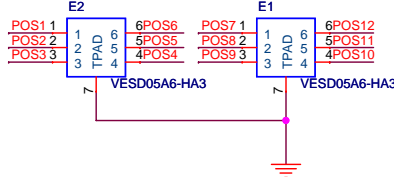
2X7 .1x.1" CENTERS
CON-TH-M-V-2X7-100X100

JTAG



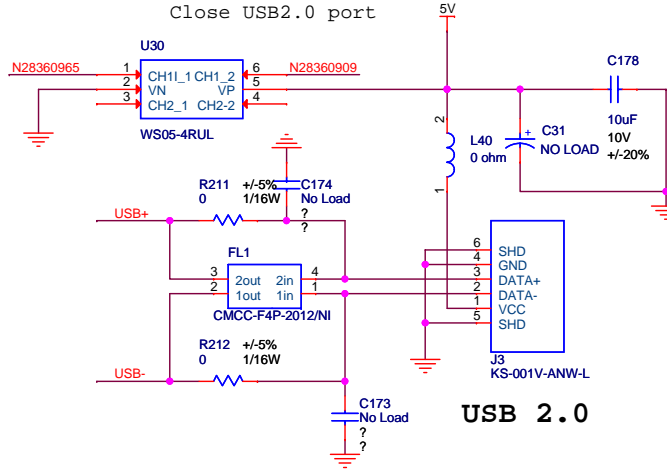
ESD for sensor

Close J10 sensor port



ESD for USB2.0

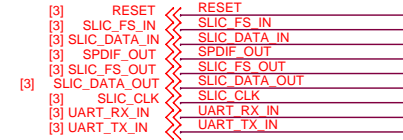
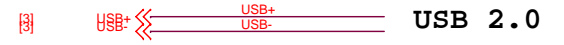
Close USB2.0 port



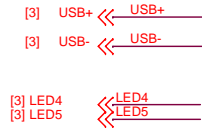
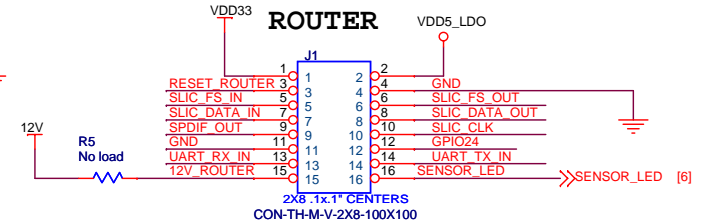
USB 2.0



JTAG INTERFACE



ROUTER



	DRAGINO TECHNOLOGY CO., LIMITED			
	Interfaces			
Size	CAGE Code	DWG NO	Rev	
B	<Cage Code>	MS14 Schematic	2.2	
Scale	Sheet		8 of 8	

Wednesday, May 22, 2013