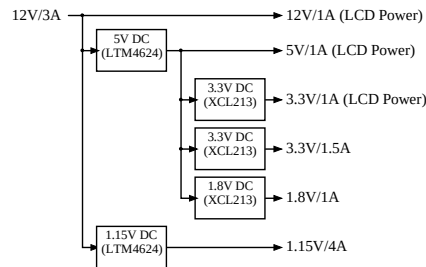
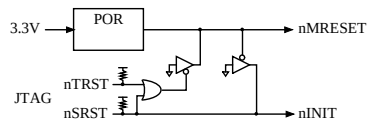
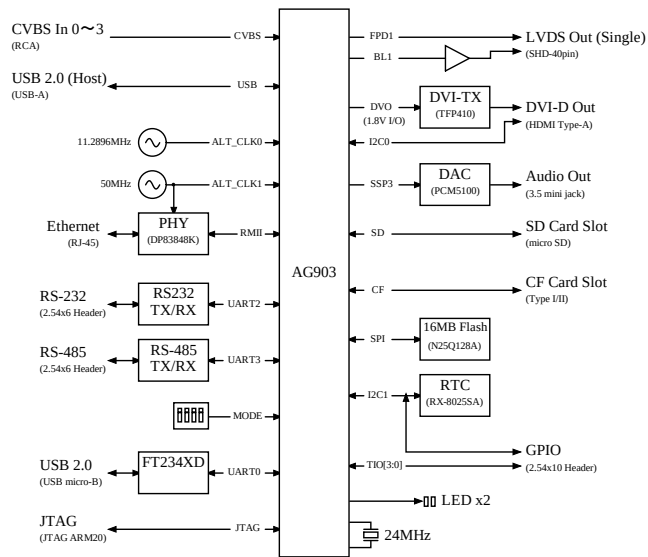


1		2		3		4		5		6		7		8	
A	Sheet Number	Sheet Name													
	1	Block Diagram													
	2	AG903													
	3	Peripheral													
	4	LVDS Output I/F													
	5	DVI Output I/F													
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	7	RS-232 / RS-485 I/F													
	8	Ethernet I/F													
	9	SD / CF Card I/F													
B	10	Power / Reset													
C															
D															

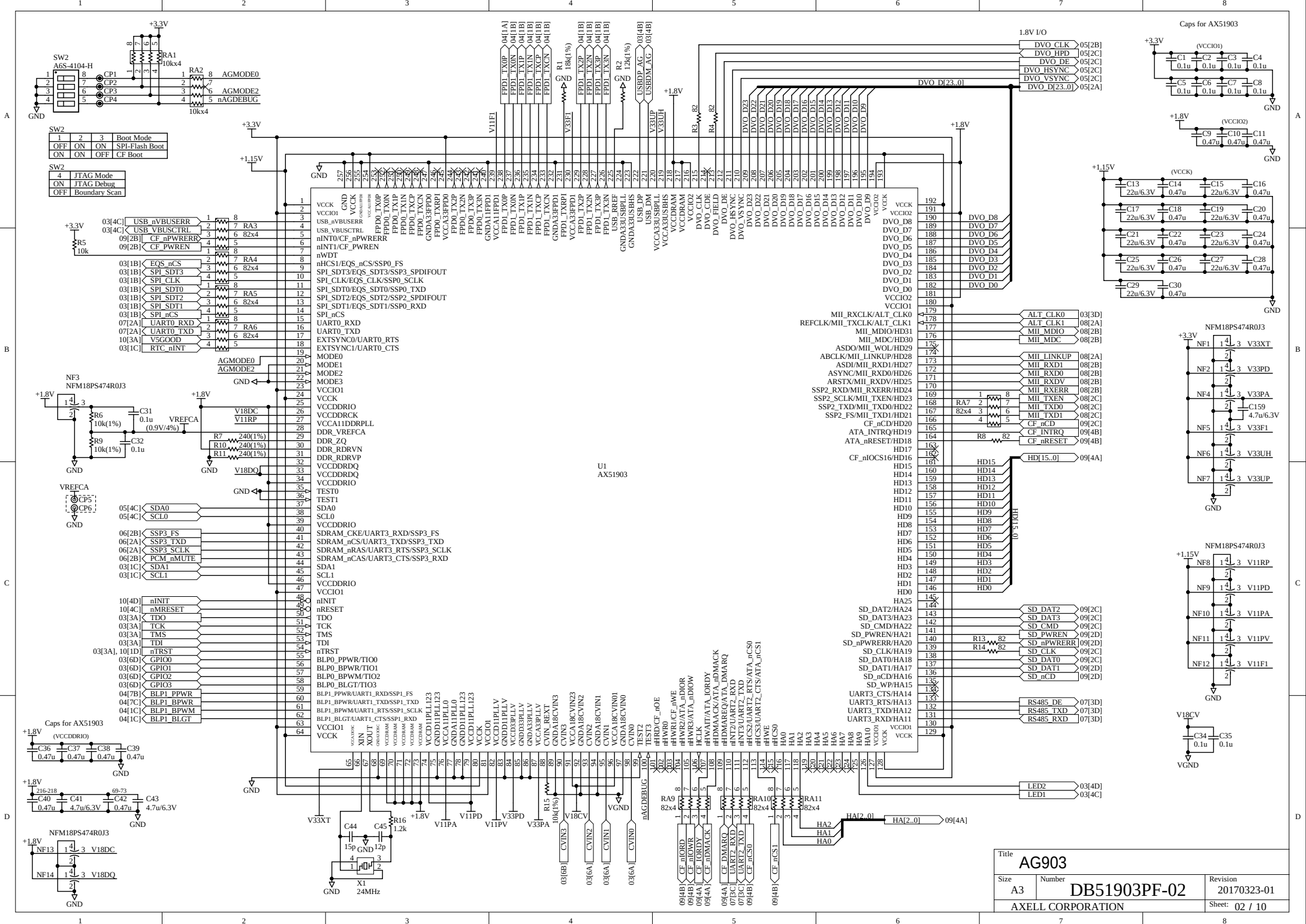


Block Diagram

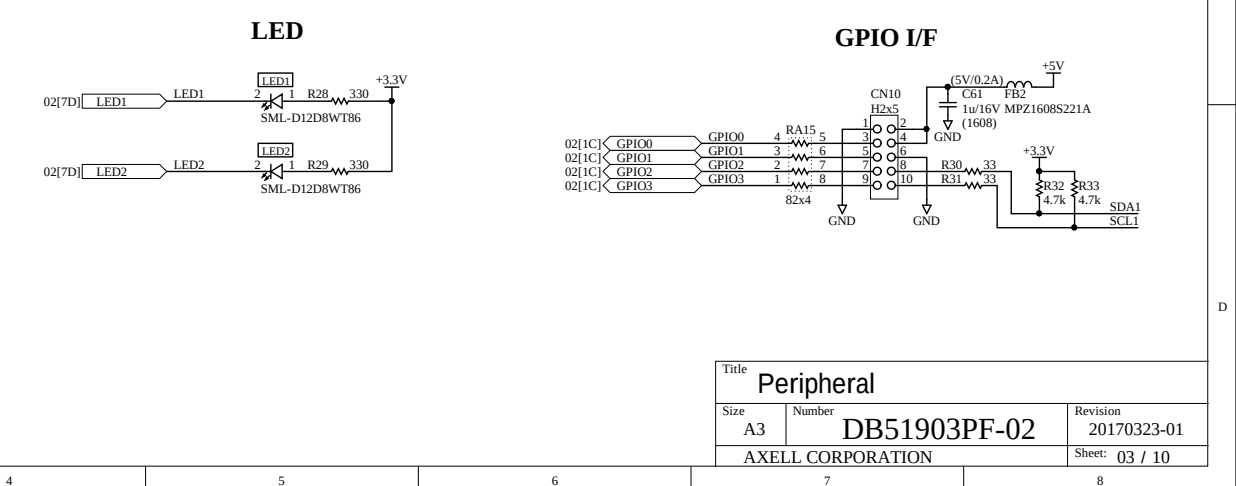
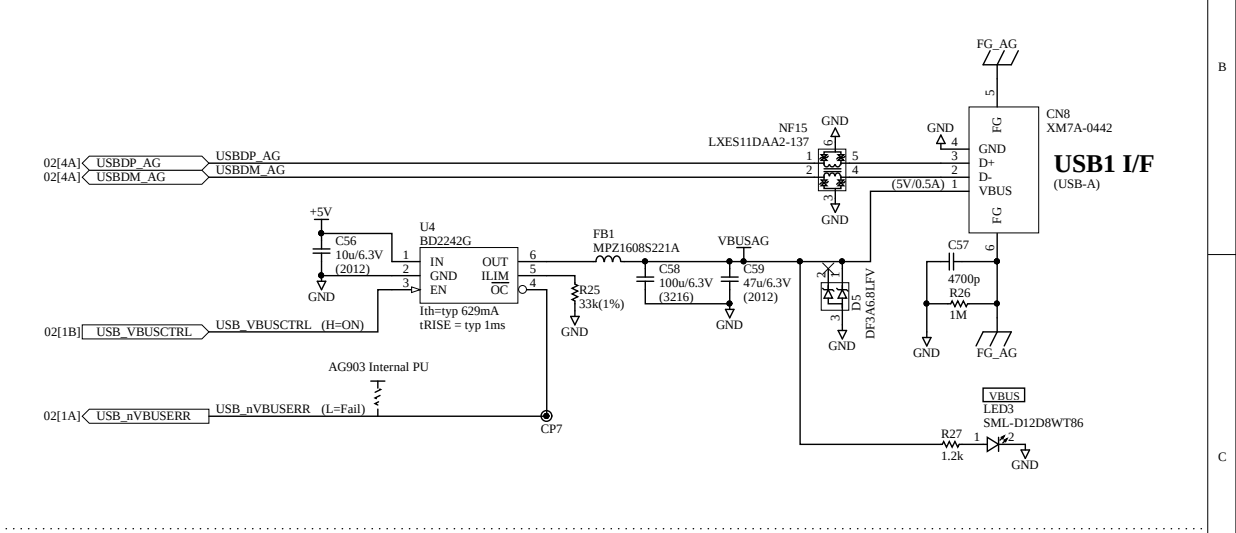
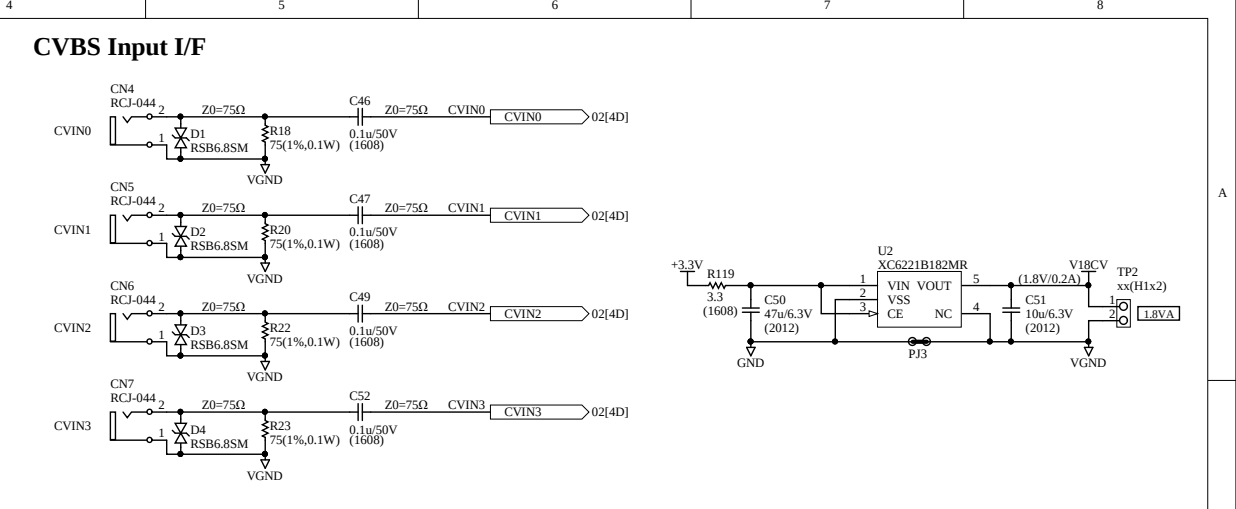
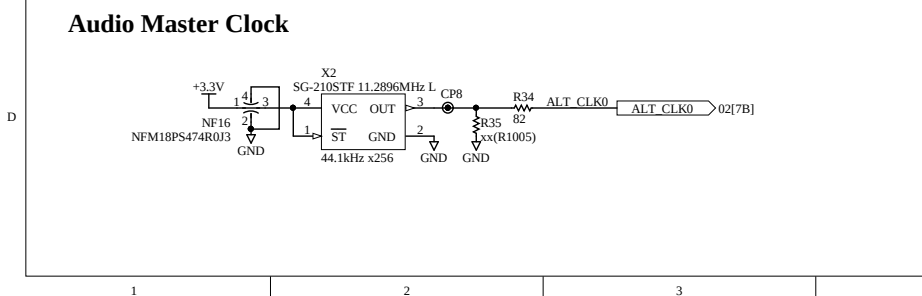
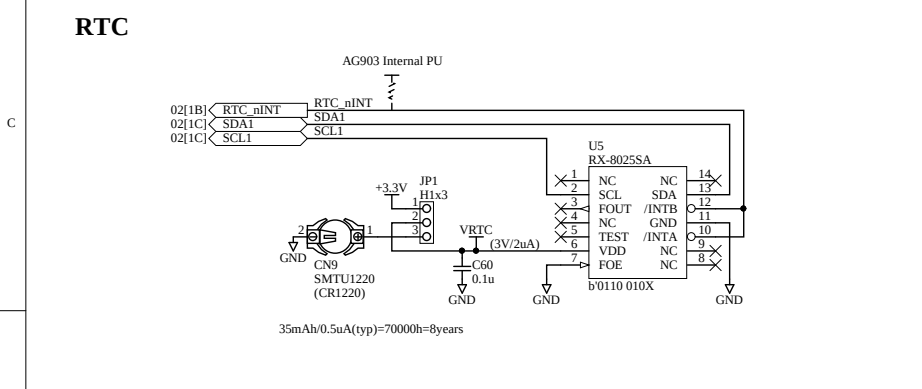
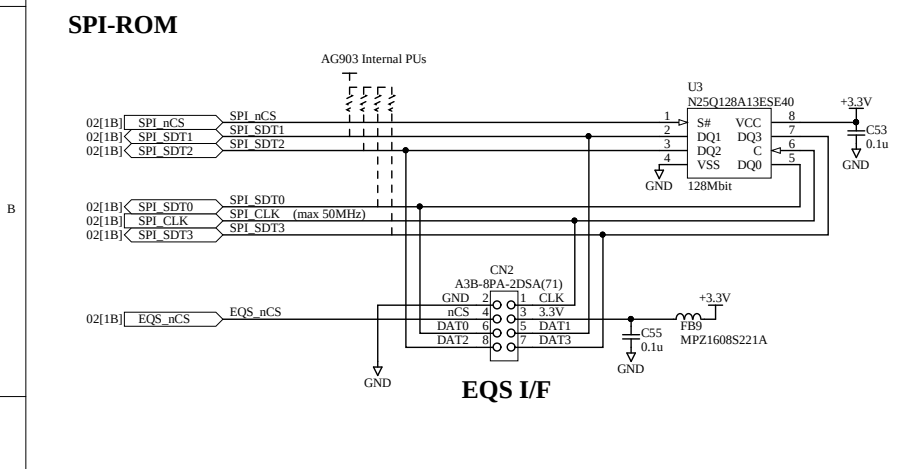
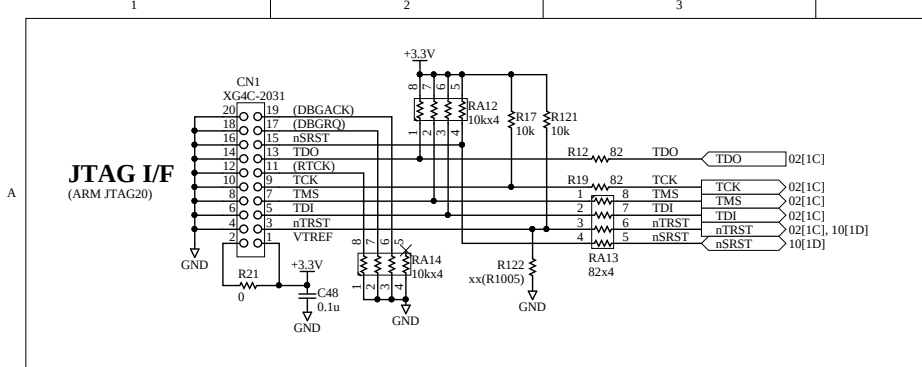
Features

- System Controller AG903 (AX51903), 24MHz
- ROM 16MByte SPI Flash (N25Q128A13ESE40)
- Video In NTSC/PAL Composite, 1Vp-p/75Ω, RCA x4
- Video Out LVDS Single, SHD-40 x1
BackLight Control (ON/OFF, PWM)
FPD Power Output (+12V/1A, +5V/1A, +3.3V/1A)
- Audio Out DVI-D, HDMI Type-A x1
Stereo, 2Vrms, 3.5 mini jack x1
- USB I/F USB2.0 Host, USB-A x1
- Ethernet I/F 10BASE-T/100BASE-TX, RJ-45 x1
- Serial I/F RS-232(TXD/RXD), USB micro-B x1
RS-232(TXD/RXD), 2.54x6 Header x1
Half-duplex RS-485, 2.54x6 Header x1
3.3V SDSC/SDHC, micro SD Slot x1
3.3V CF Card (True IDE), TypeI/II Slot x1
- Storage I/F RTC (RX-8025SA), CR1220 Backup
- Peripheral 4pos DIP Switch (AG903 Boot Mode)
LED x2
GPIO, 2.54x10 Header x1
Manual Reset Switch
JTAG (ARM JTAG20)
- Power 12V/3A, DC2.1 Jack
- PCB Size 148mm x 100mm

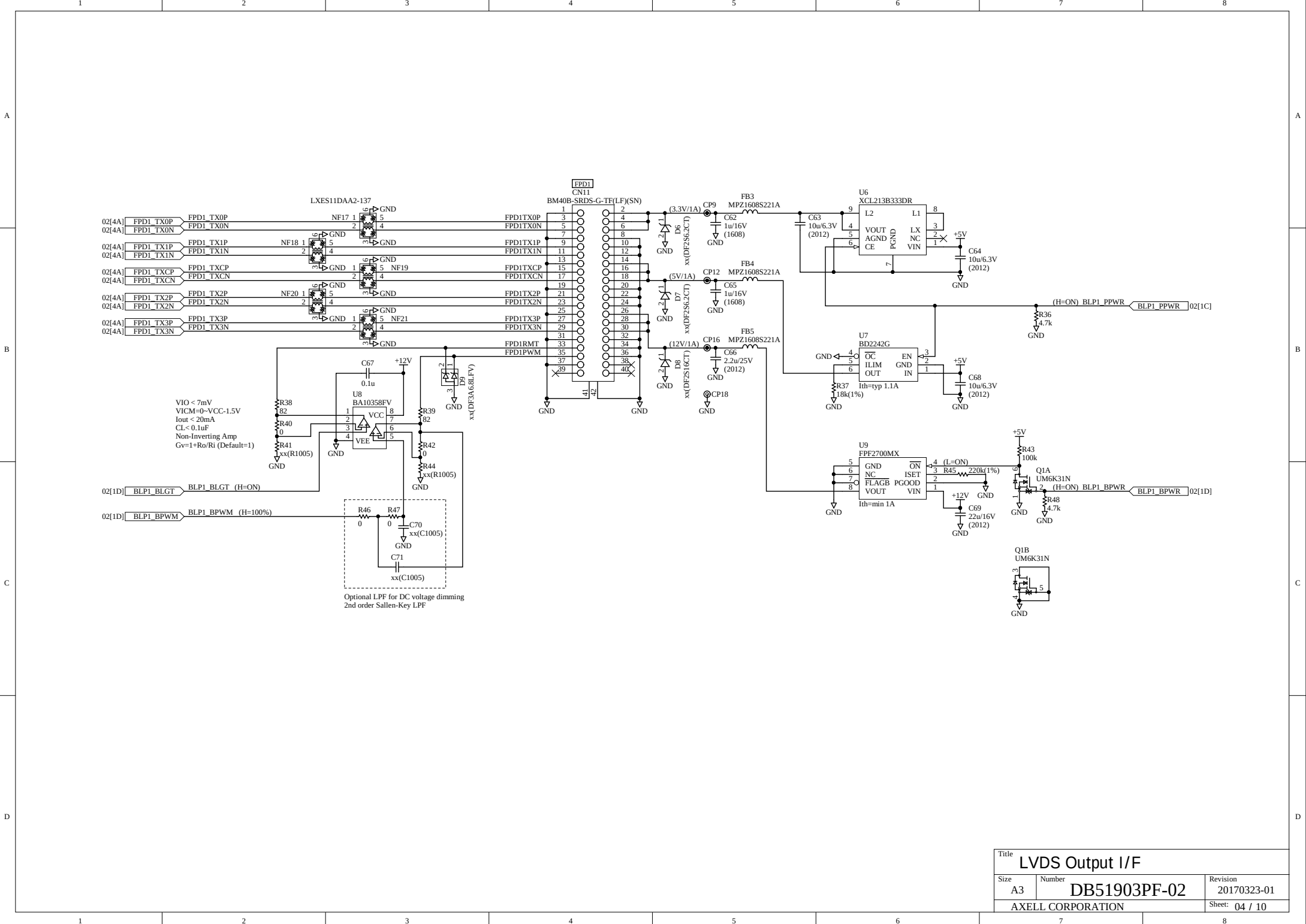
Title Block Diagram		
Size A3	Number DB51903PF-02	Revision 20170323-01
AXELL CORPORATION		Sheet: 01 / 10



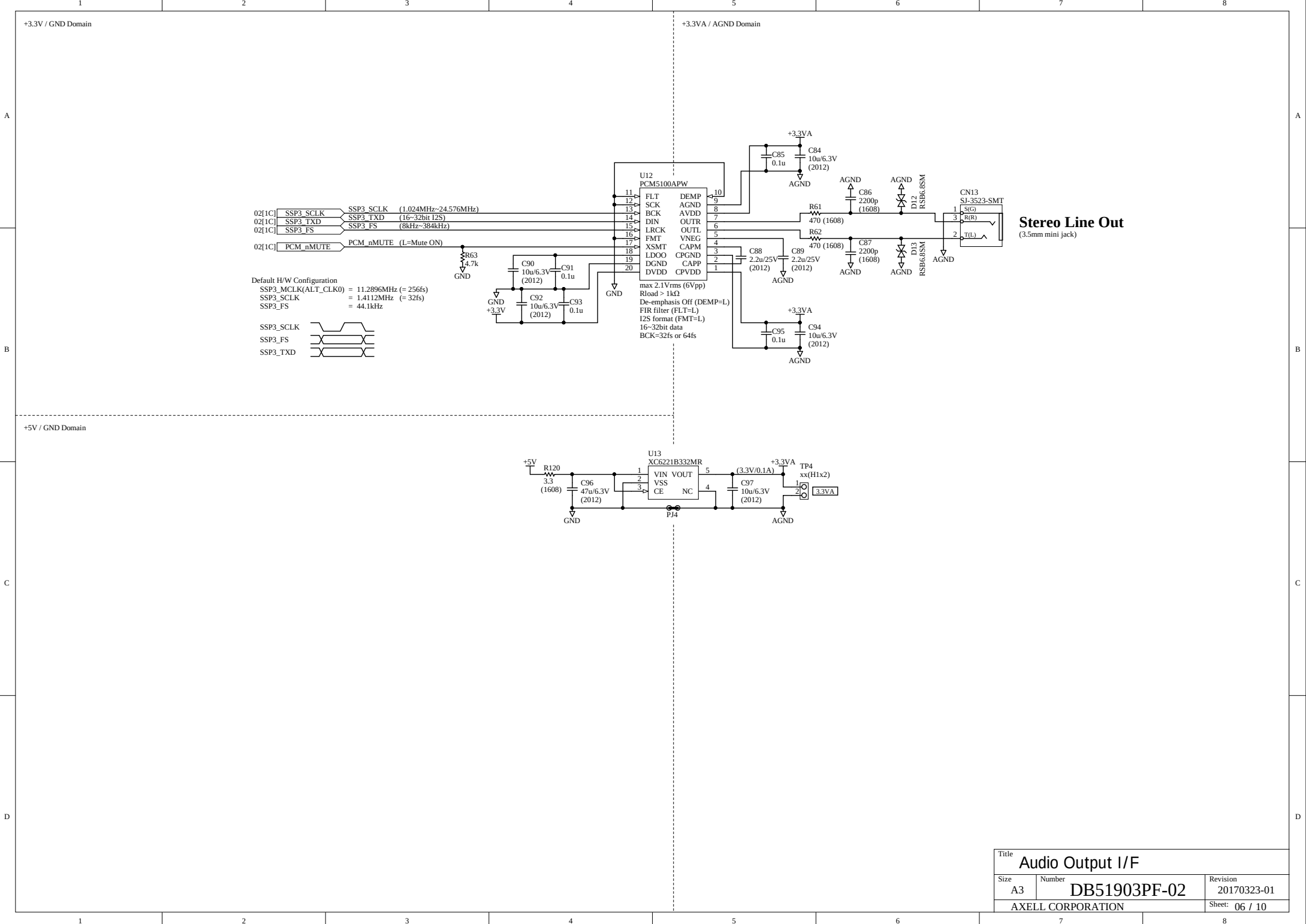
Title		AG903	
Size	A3	Number	DB51903PF-02
Revision	20170323-01		
AXELL CORPORATION			Sheet: 02 / 10



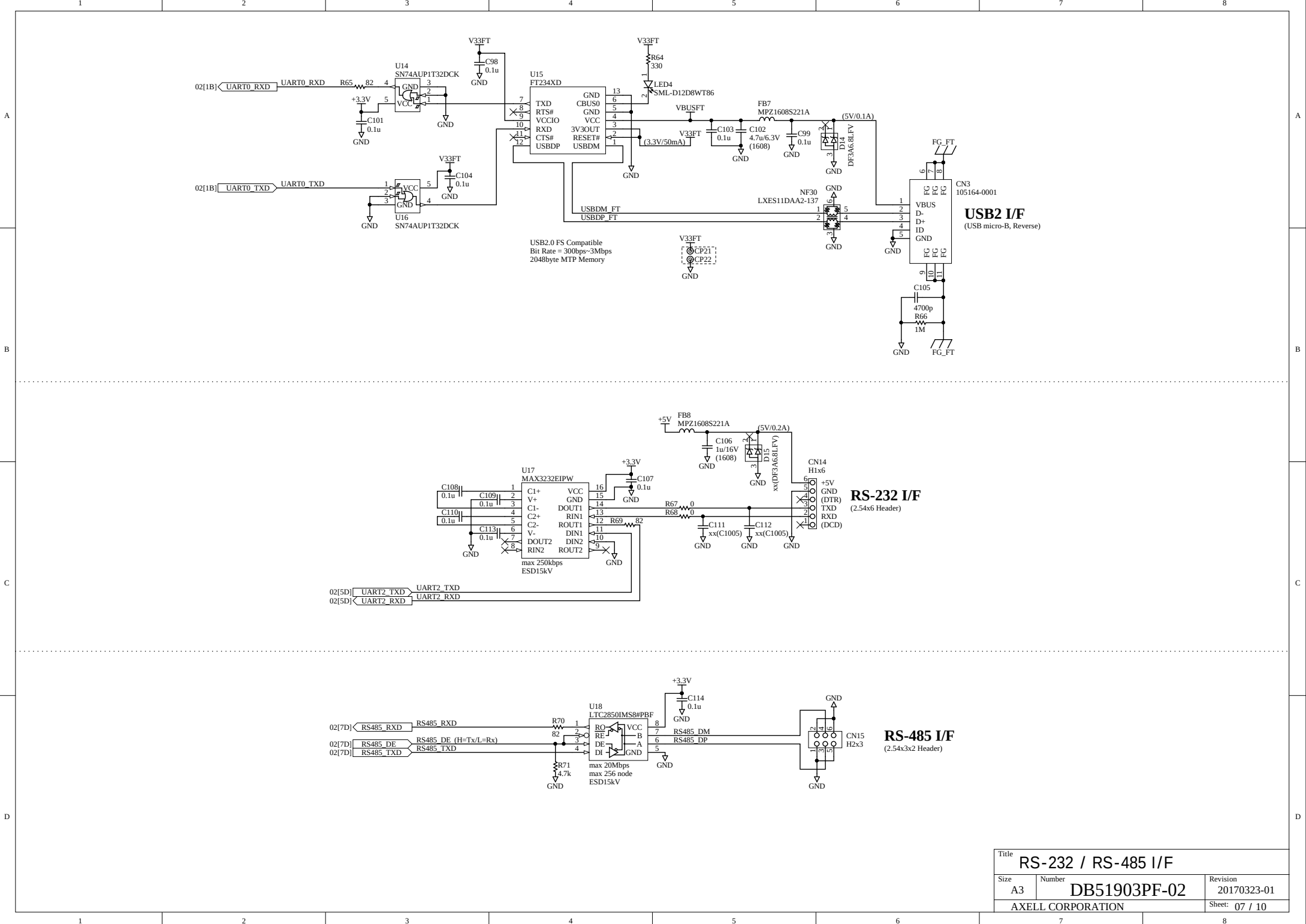
Title		Peripheral	
Size	Number	Revision	
A3	DB51903PF-02	20170323-01	
AXELL CORPORATION		Sheet: 03 / 10	



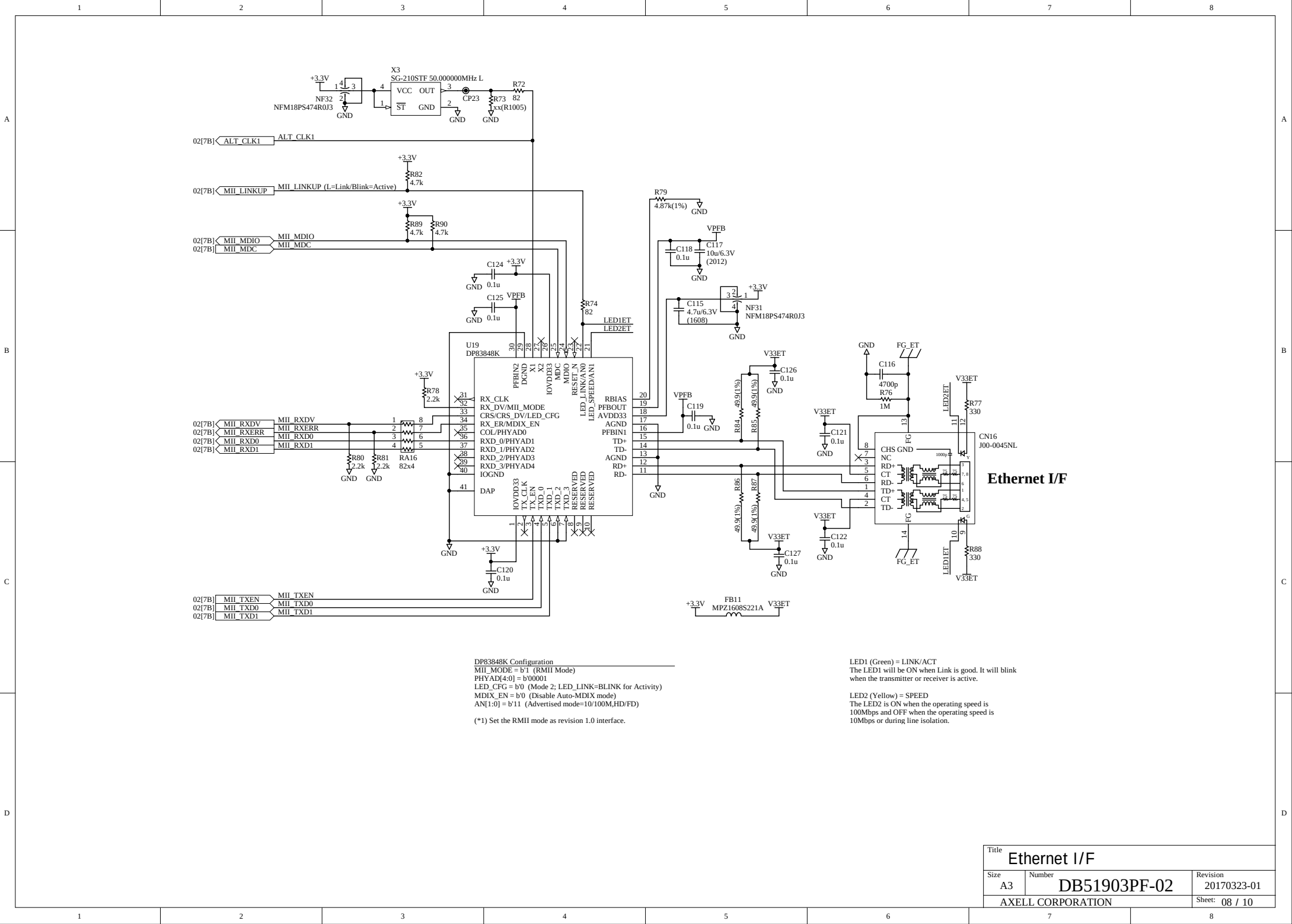
Title			LVDS Output I/F
Size	Number	Revision	
A3	DB51903PF-02	20170323-01	
AXELL CORPORATION		Sheet: 04 / 10	



Title Audio Output I/F		
Size A3	Number DB51903PF-02	Revision 20170323-01
AXELL CORPORATION		Sheet: 06 / 10



Title RS-232 / RS-485 I/F		
Size A3	Number DB51903PF-02	Revision 20170323-01
AXELL CORPORATION		Sheet: 07 / 10



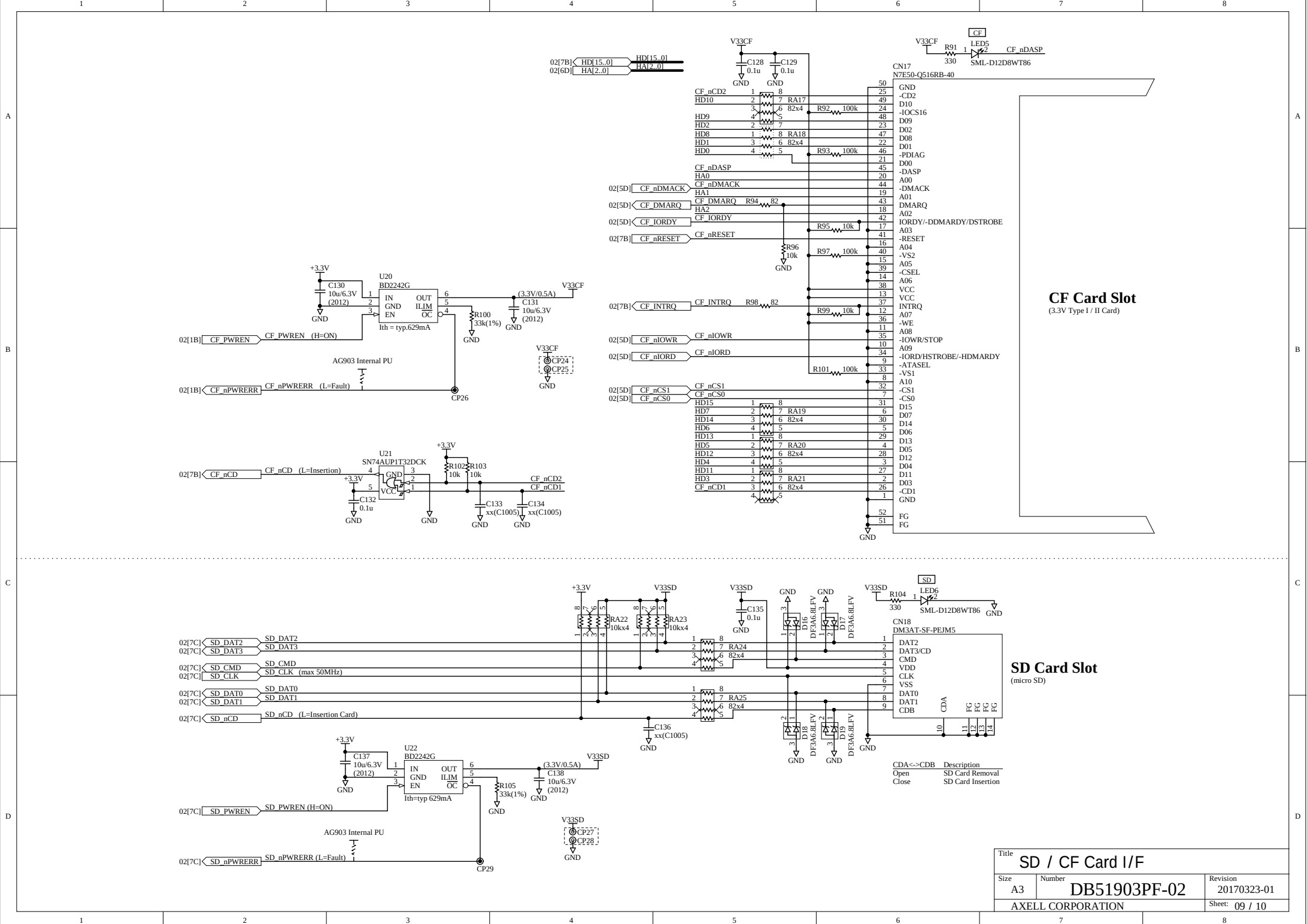
DP83848K Configuration
MII_MODE = b'1 (RMII Mode)
PHYAD[4:0] = b'00001
LED_CFG = b'0 (Mode 2; LED_LINK=BLINK for Activity)
MDIX_EN = b'0 (Disable Auto-MDIX mode)
AN[1:0] = b'11 (Advertised mode=10/100M,HD/FD)

(*1) Set the RMII mode as revision 1.0 interface.

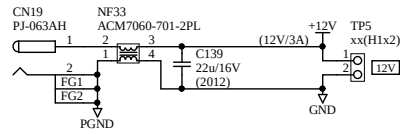
LED1 (Green) = LINK/ACT
The LED1 will be ON when Link is good. It will blink when the transmitter or receiver is active.

LED2 (Yellow) = SPEED
The LED2 is ON when the operating speed is 100Mbps and OFF when the operating speed is 10Mbps or during line isolation.

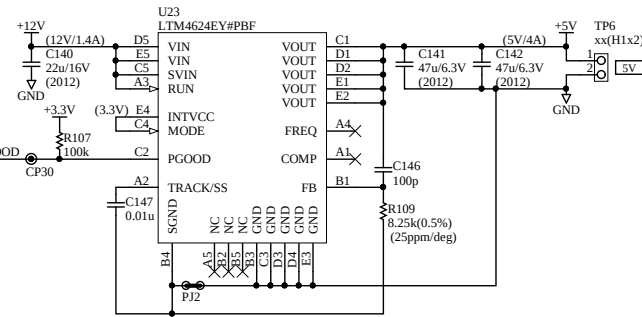
Title Ethernet I/F		
Size A3	Number DB51903PF-02	Revision 20170323-01
AXELL CORPORATION		Sheet: 08 / 10



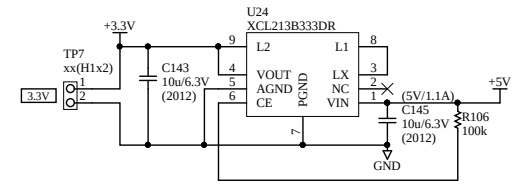
+12VDC IN



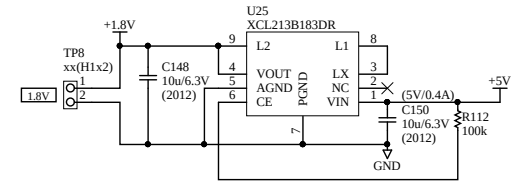
02[1B] < V5GOOD



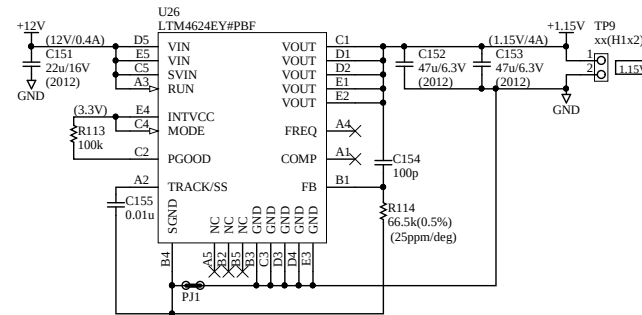
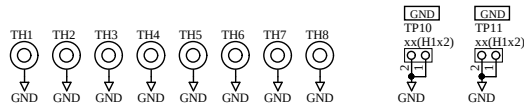
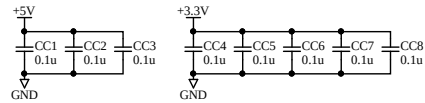
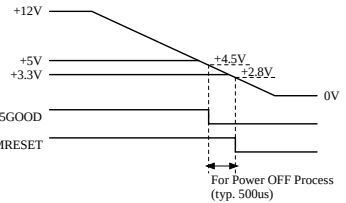
VOUT = 4.87V(5V-2.6%) ~ 5.1V(5V+2.0%)
60.4k/8.25k x0.6V + 0.6V = 4.99V
tRISE = 0.002uF/2.5uA x0.6V = 5.28ms
Forced Continuous Mode (MODE = INTVCC)
fs = 1MHz (FREQ = Open)
Eff = 93% @3A
PD = 1.2W @3A
ΔVo@Step = 37mV (1A step, 10A/us)



VOUT = 3.234V(3.3V-2%) ~ 3.366V(3.3V+2%)
tRISE = 0.3ms
PWM Auto Control
fs = 3MHz
Eff = 89% @1.5A
PD = 0.6W @1.5A
ΔVo@Step = 63mV (0.9A step)



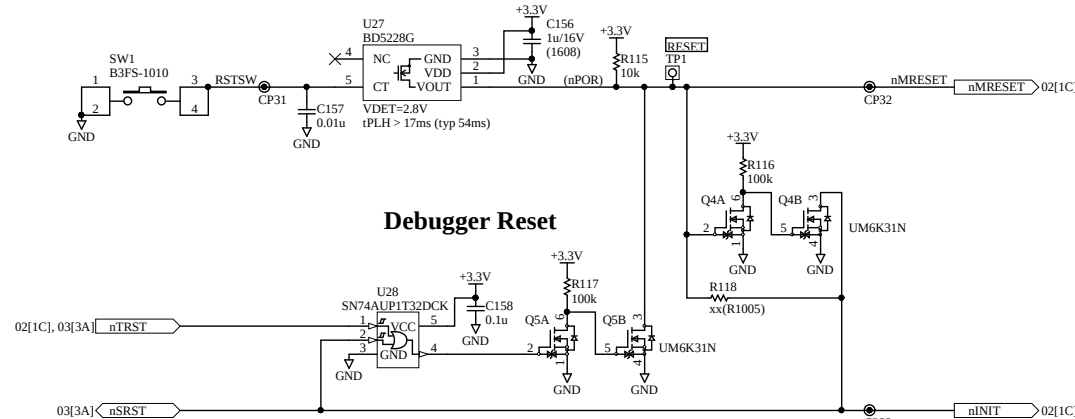
VOUT = 1.764V(1.8V-2%) ~ 1.836V(1.8V+2%)
tRISE = 0.3ms
PWM Auto Control
fs = 3MHz
EH = 86% @1A
PD = 0.3W @1A
ΔVo@Step = 40mV (0.9A step)



VOUT = 1.12V(1.15V-2.6%) ~ 1.16V(1.15V+0.9%)
60.4k/66.5k x0.6V + 0.6V = 1.14V
tRISE = 0.002uF/2.5uA x0.6V = 5.28ms
Forced Continuous Mode (MODE = INTVCC)
fs = 1MHz (FREQ = Open)
Eff = 82% @3A
PD = 0.7W @3A
ΔVo@Step = 11mV (1A step, 10A/us)

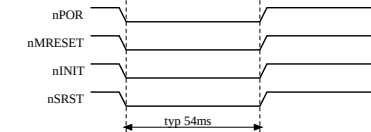
Manual Reset

Power-On-Reset

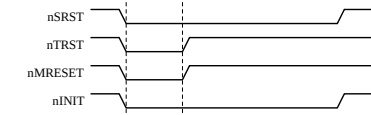


Debugger Reset

[Power On Reset Timing]



[Debugger Reset Timing]



Title			Power / Reset
Size	Number	Revision	
A3	DB51903PF-02	20170323-01	
AXELL CORPORATION			Sheet: 10 / 10