

## System Operation

### 1. Power ON/OFF

Power on : Apply 7.5V/3V DC power to the system. (Power connector is 2.1mm power socket with centre +ve / outer -ve )

Standby Mode: System goes to standby mode when system shutdown issues with front panel menu power off command or press rear panel power ON/OFF push button. In this mode, only 5V is supplied to BB board. Controlled 3.3V and 5.0V voltages to Main Board and USB Board will be deactivated. Pushing power ON/OFF button while in this mode will bring the system to normal operation mode and Main Board and USB Board voltages will be restored.

If use an external HDMI display monitor recommend connecting HDMI and external devices/network connection before apply power to the system for smooth initialisation of the system.

### 2. PCB Modules

#### 2.1. OpenTTP Main Board

Interfacing the following modules and generates TTL level input/output signals. Maintain power on sequence and system power control.

##### 2.1.1. Beagle Bone Black CPU (BB)

Beaglebone Black RevC , Manufacture Part No : BBONE-BLACK-4G and SD card with Linux operating system installed

##### 2.1.2. NV08C-CSM GNSS Receiver Board

GNSS receiver contains two active and passive antenna configurations. Default is ANT-P is connected to GPS Splitter DC-PASS port and antenna supply feed selection with external JP1 power selection connector. Default set to external 5V supply to antenna. Trimble Bullet GNSS antenna 5.0V model 97860-00 with TNC termination is provided.

##### 2.1.3. XEM6001 FPGA Board

Board is powered via main board 3.3V supply. Remove R26 SMD resistor of FPGA module for external power supply configuration of FPGA module.

##### 2.1.4. LTE-Lite PCIE GPSDO Board

Jackson Lab PN: 100461 LTE-Lite mini PCI express 10MHZ output

##### 2.1.5. GPS Signal Divider

GPS divider is Rojone AMA-2251-1400-2MS module a 2 way divider SMA – 1 port dc pass 50 ohm other DC block

##### 2.1.6. LCD Module

Crystalfontz CFA635-TFE-KU USB

#### 2.2. USB Hub Board

7 Port USB with HDMI connector mounting.

#### 2.3. Power Control Board

Applied DC 7.5V power is regulated to 5.0V which is supplied to BB. When BB SYSREST\_BB is ready POWON signal is issued to power control board which activates 3.3V and 5.0V to the Main board and USB hub board.

#### 2.4. USBPWR Connector Board

Controlled 5V supply to USB Hub Board

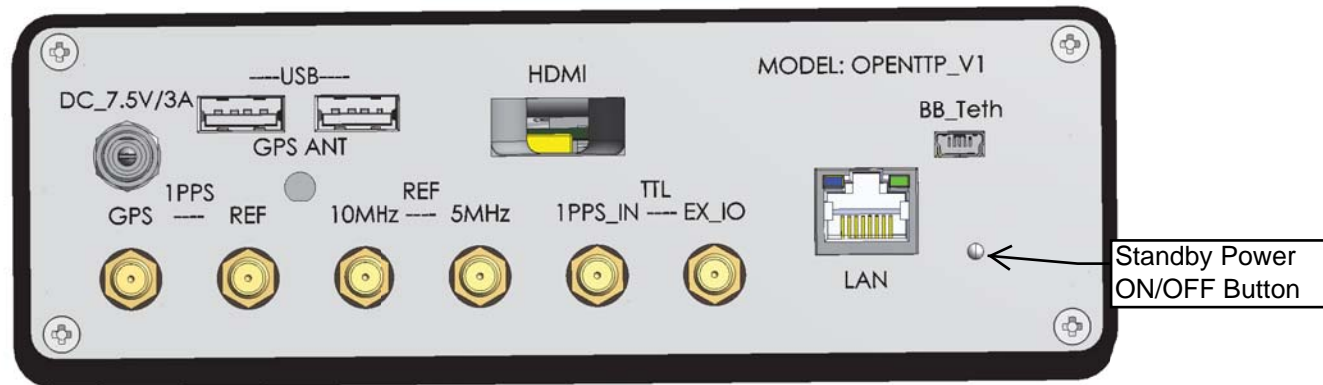
#### 2.5. NV08C Connector Board

Signal and Power connection from Main Board and NV08C Module

#### 2.6. USB Disk Mounting Board

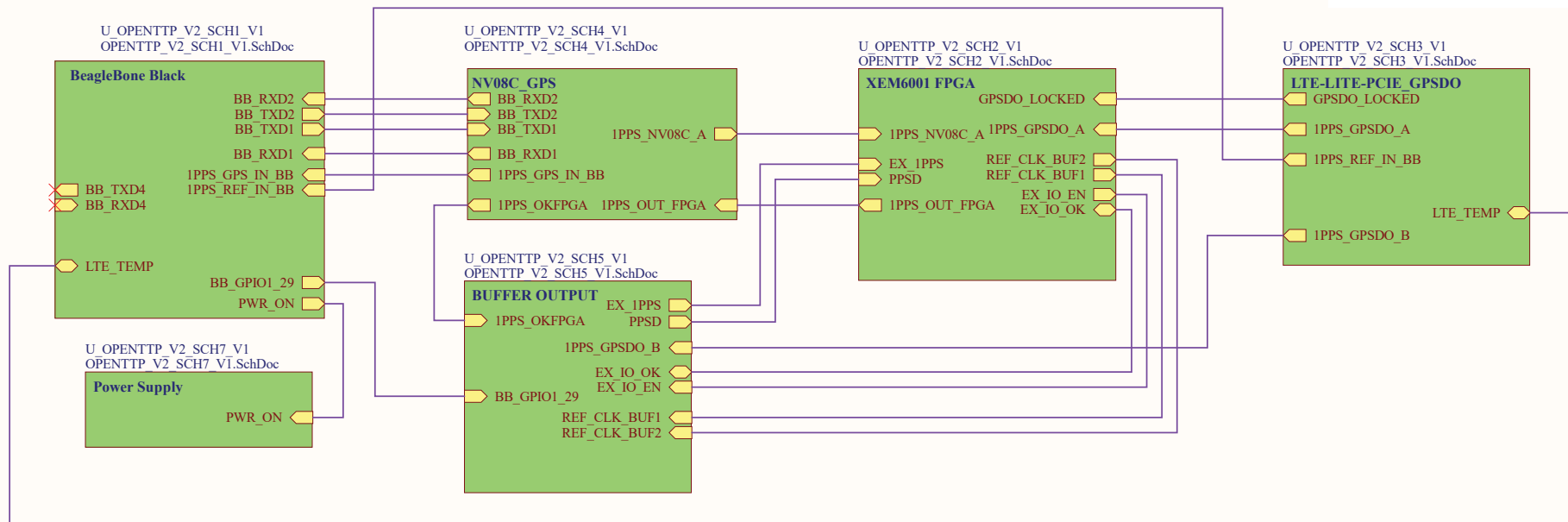
USB disk mounting bracket for M2 SATA SSD with USB interface.

# OpenTTP Rear View



## OPENTTP Main Board Schematics: Revision 2.0

Page 1 : Master Sheet  
Page 2 : Beagle Bone Black  
Page 3 : XEM6001 FPGA  
Page 4 : LTE-LITE\_PCIE\_GPSDO  
Page 5 : NV08 GNSS Receiver  
Page 6 : Buffer OutPut  
Page 7 : GPS DIVIDER  
Page 8 : Power Supply  
Page 9 : Mounting Holes Notes-1  
Page 10 : Cable Assemblies Notes-2



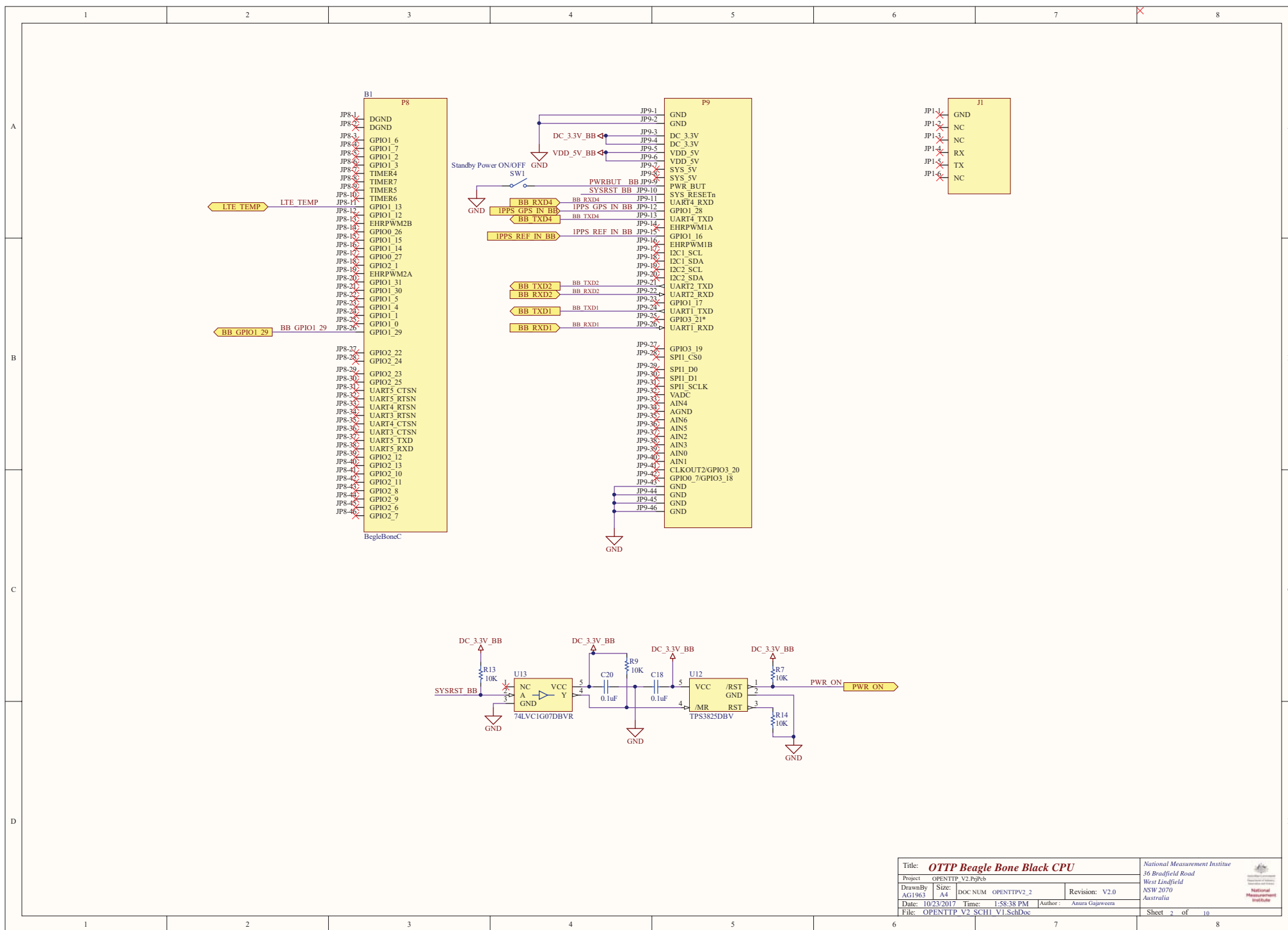
U\_OPENTTP\_V2\_SCH9\_V1  
OPENTTP\_V2\_SCH9\_V1.SchDoc  
**Cable Assembly**

U\_OPENTTP\_V2\_SCH6\_V1  
OPENTTP\_V2\_SCH6\_V1.SchDoc  
**GPS\_DIVIDER**

U\_OPENTTP\_V2\_SCH8\_V1  
OPENTTP\_V2\_SCH8\_V1.SchDoc  
**Mounting Holes**

PCB Version : OPENTTPV2b  
AG/MAY2017

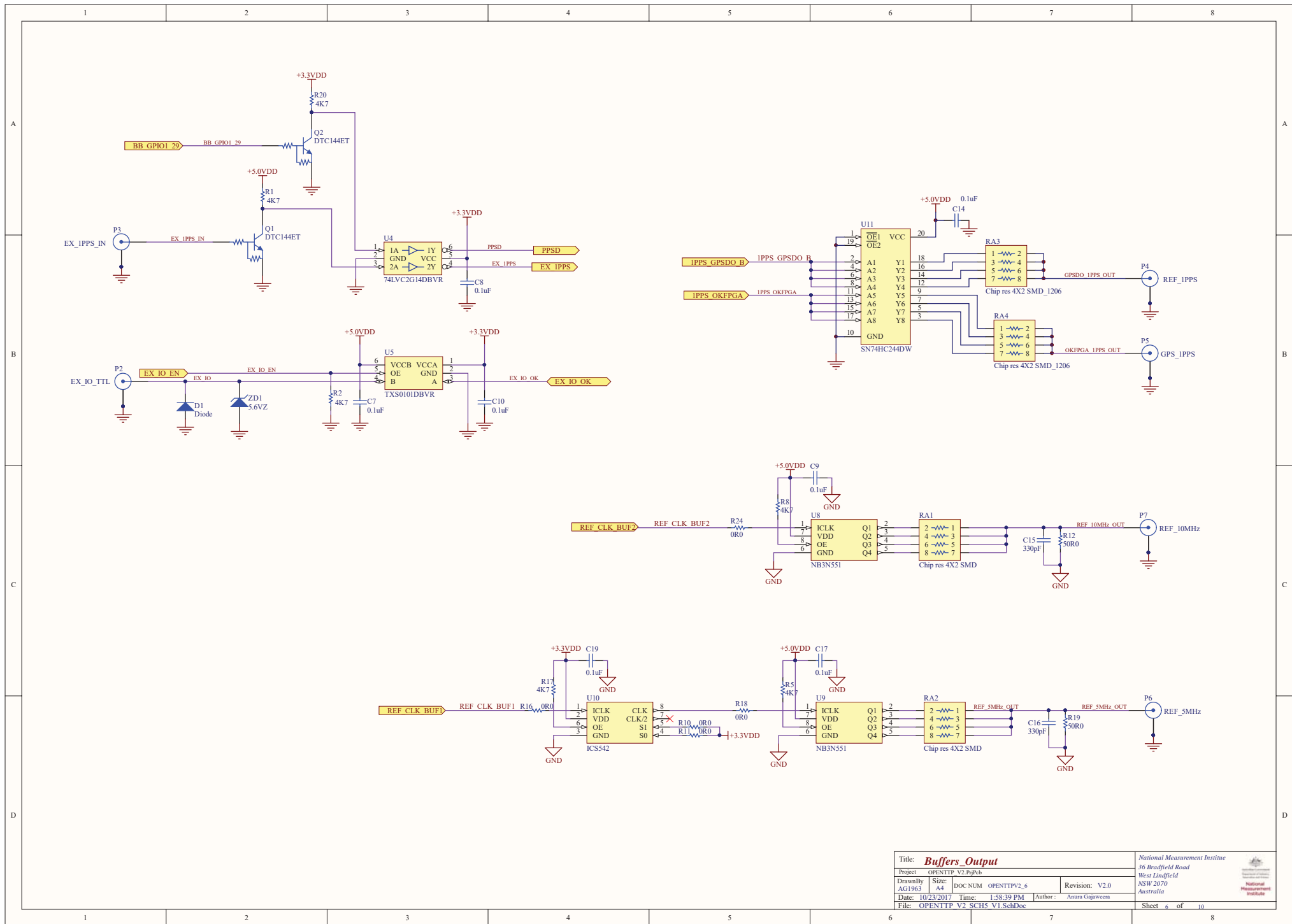
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Project	OPENTTP_V2.PrjPcb				
DrawnBy	AG1963	Size:	A4	DOC NUM	OPENTTPV2_1
Date:	10/23/2017	Time:	1:58:38 PM	Revision:	V2.0
File:	OPENTTP_V2_SCHM_V1.SchDoc	Author:	Amura Gajaweera		
				Sheet	1 of 10





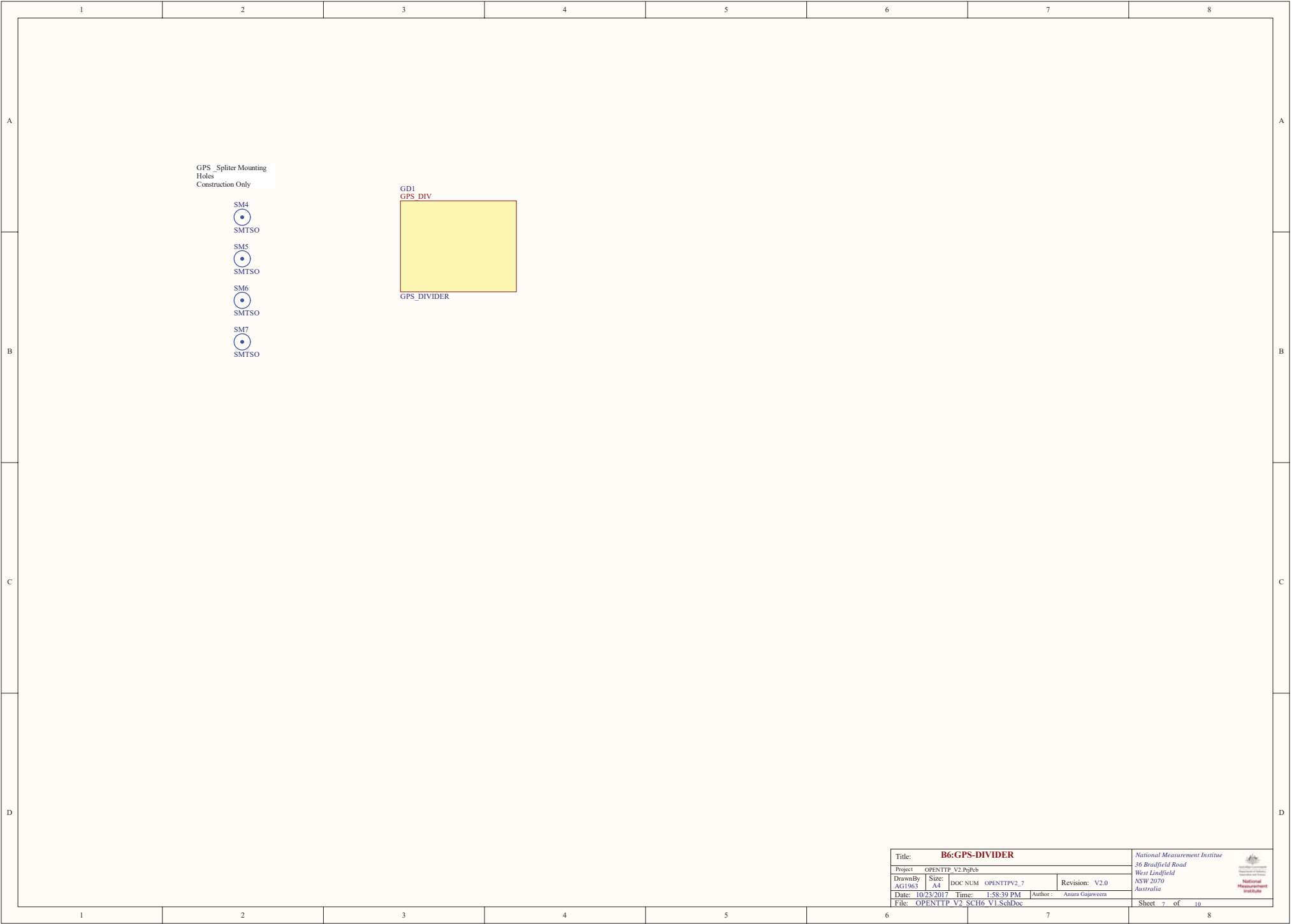






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Project: OPENTTP V2.Pptch				36 Bradfield Road			
DrawnBy: AG1963				West Lindfield			
Size: A4				NSW 2070			
Date: 10/23/2017				Australia			
Time: 1:58:39 PM				Author: Anura Gajweera			
File: OPENTTP V2_SCH5 V1.SchDoc				Sheet 6 of 10			





GPS\_Splitter Mounting  
Holes  
Construction Only

SM4



SMTSO

SM5



SMTSO

SM6



SMTSO

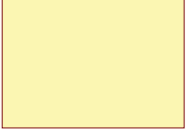
SM7





SMTSO

GD1

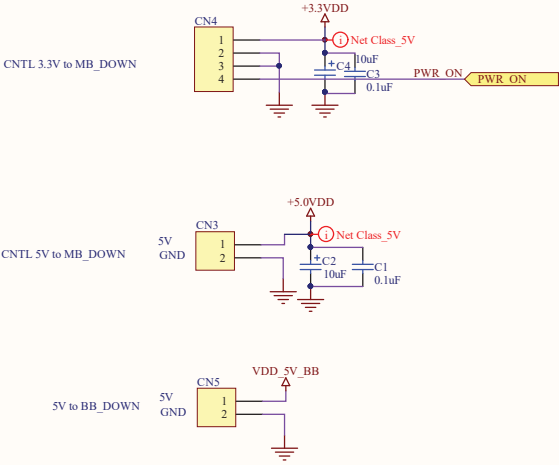
GPS\_DIV



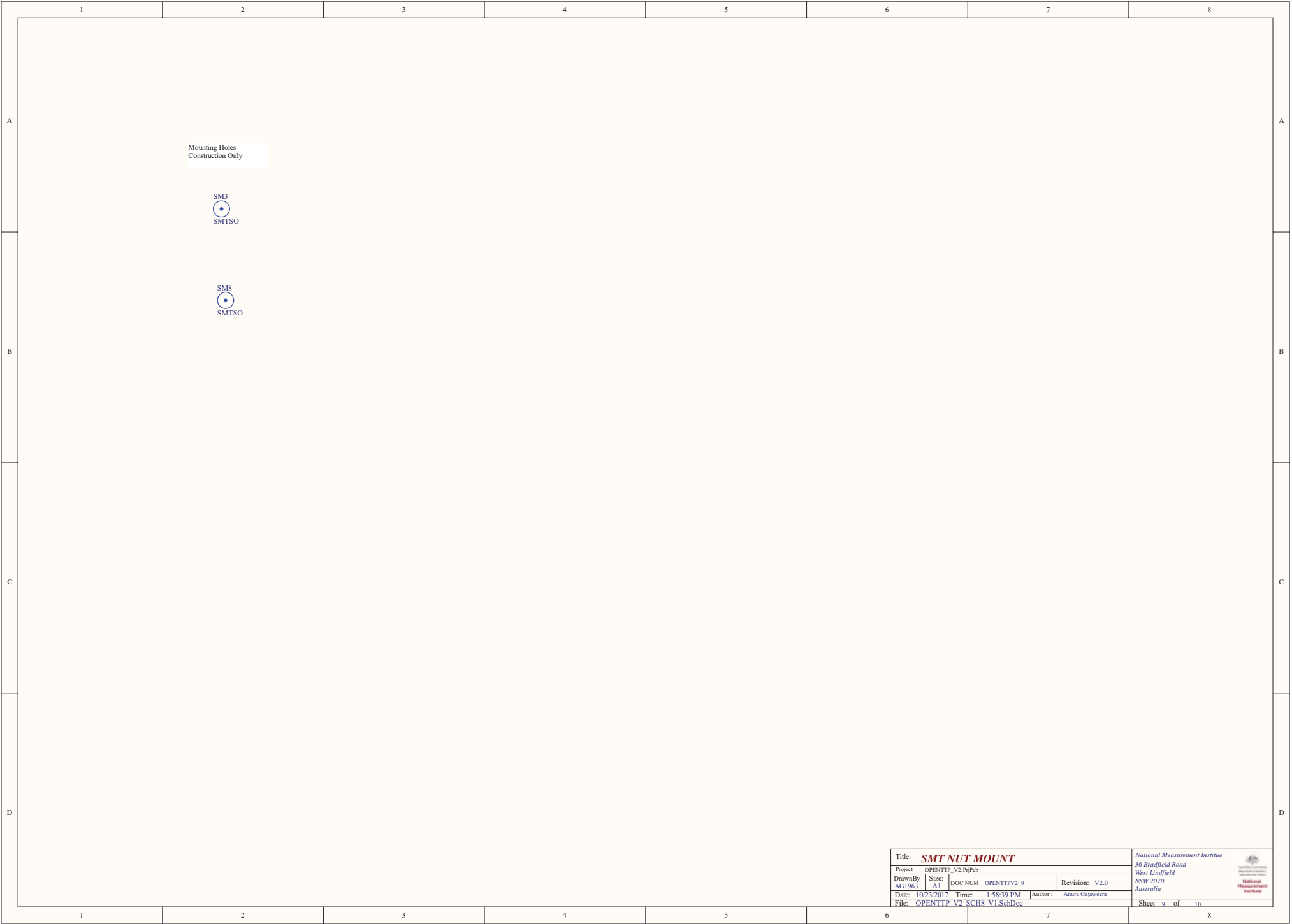
GPS\_DIVIDER


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Project OPENTTP V2.PptFeb					36 Bradfield Road		
DrawnBy AG1963					West Lindfield		
Size: A4					NSW 2070		
DOC NUM OPENTTPV2_7					Australia		
Revision: V2.0							
Date: 10/23/2017 Time: 1:58:39 PM							
Author : Anura Gajaweera							
File: OPENTTP V2 SCH6 V1.SchDoc					Sheet 7 of 10		

All Power supplied via Internal  
Power Supply Board

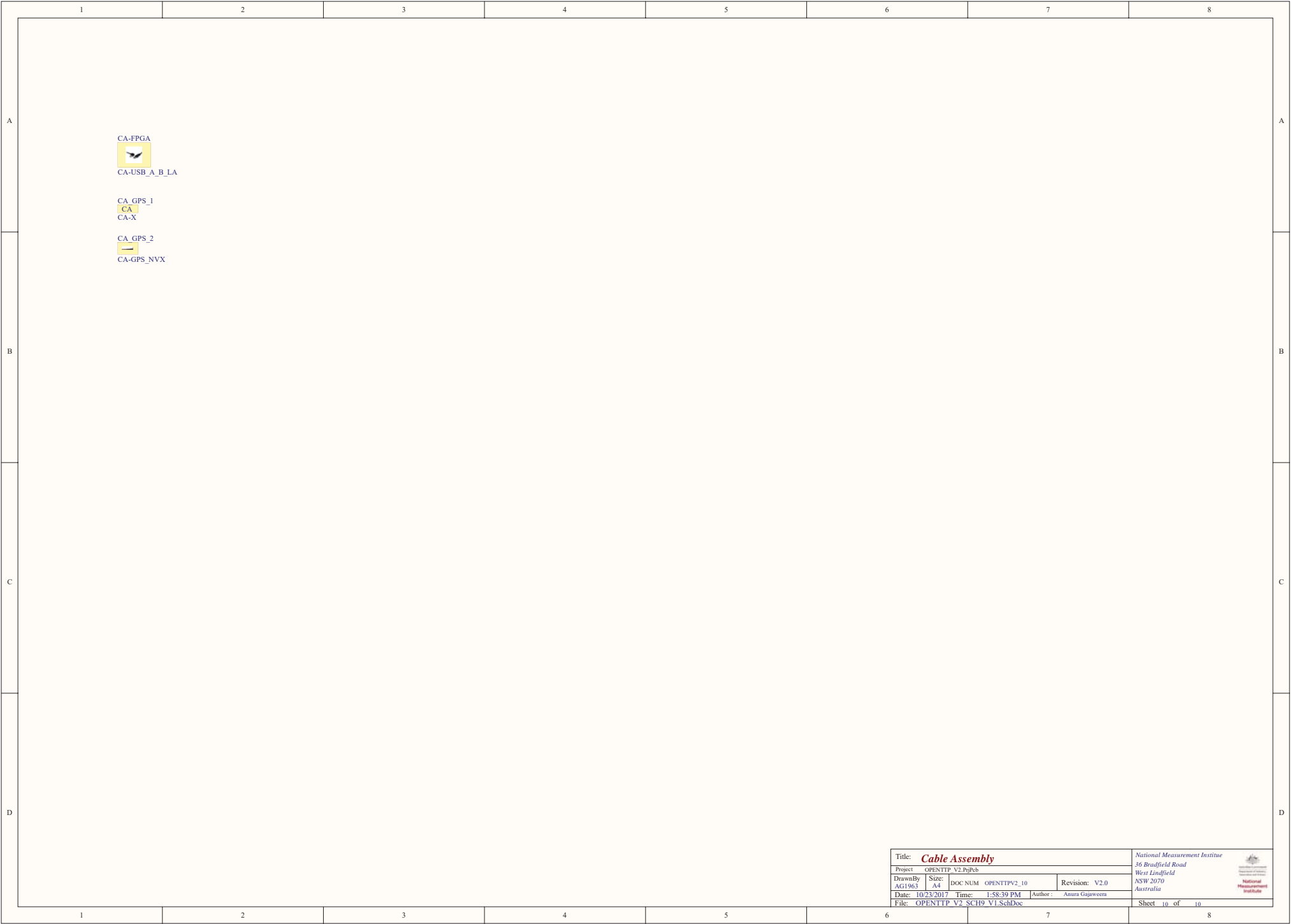


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DrawnBy: AG1963				West Lindfield	
Size: A4		DOC NUM: OPENTTPV2_8		Revision: Rev 2.0	
Date: 10/23/2017		Time: 1:58:39 PM		Author: Anura Gajaweera	
File: OPENTTP V2 SCH7 V1.SchDoc				Sheet 8 of 10	



Title: <b>SMT NUT MOUNT</b>				National Measurement Institute		
Project OPENTTP V2.PptFeb				36 Bradfield Road		
DrawnBy AG1963				West Lindfield		
Size: A4				NSW 2070		
DOC NUM OPENTTPV2_9				Revision: V2.0		National Measurement Institute
Date: 10/23/2017		Time: 1:58:39 PM		Author: Anura Gajaweera		
File: OPENTTP V2 SCH8 V1.SchDoc						
Sheet 9 of 10						





# Bill of Materials

OTTP Master Block

OTTP Master Block

Source Data From:

OPENTTP\_V2.PrjPcb

Project:

OPENTTP\_V2.PrjPcb

Variant:

None

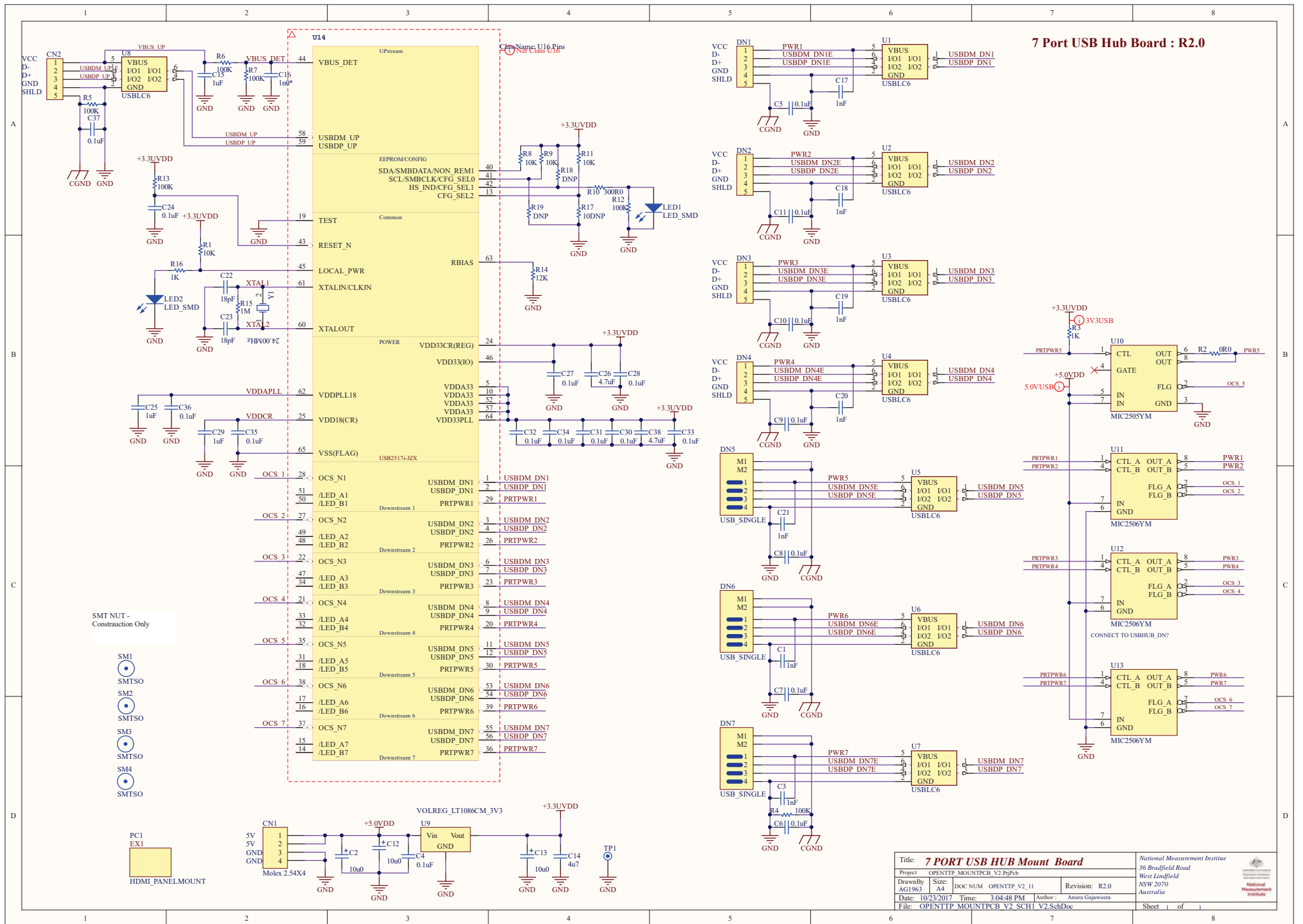
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B1	2	Header, 10-Pin, Dual row		MTSW-123-22-G-D-	CLASS_IC	BegleBoneC	BegalBB_CONNECTO	SAMTECH	MTSW-123-22-G-D-472		1		
B2	3	Header, 10-Pin, Dual row		HDRF-XEM3001	Opak Kelly	XEM6001	XEM6001				1	JP2 and JP3 of B2	
B3	4	MiniPCI Card		1394481	Element14	minipcie	MiniPCle_ 67910-0002	Molex	67910-0002		1		
B5	5	Header, 10-Pin, Dual row				NV08C-CSM-BRD	NV08C-CSM-BRD				1	DO NOT PLACE	
BP1	5	Header, 20-Pin, Dual row		1690521	Element14	NV08C-CSM-	NV08C-CSM-BRD -	Molex	79107-7134		1		
C1	8	Capacitor (Semiconductor SIM Model)	0.1uF	264-4179	RS COMPONENTS	0.1uF	C3216-1206	KEMET	C0805C104K5RACTU		1		
C2	8	Polarized Capacitor SMD	10uF	1190129	Element14	Cap Tantalem	CAp Tanta	MULTICOMP	MCCTC106M025		1		
C3	8	Capacitor (Semiconductor SIM Model)	0.1uF	264-4179	RS COMPONENTS	0.1uF	C3216-1206	KEMET	C0805C104K5RACTU		1		
C4	8	Polarized Capacitor SMD	10uF	1190129	Element14	Cap Tantalem	CAp Tanta	MULTICOMP	MCCTC106M025		1		
C5	5	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C6	3	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C7	6	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C8	6	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C9	6	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C10	6	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C11	4	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C12	4	Solid Tantalum Chip Capacitor, Standard T491	10u0	1432339	Element14	T491A	CASE_A	AVX	TAJA106K016RNJ		1		
C13	4	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C14	6	Capacitor (Semiconductor SIM Model)	0.1uF	264-4179	RS COMPONENTS	0.1UF	C3216-1206	KEMET	C0805C104K5RACTU		1		
C15	6	Capacitor (Semiconductor SIM Model)	330pF	3606090	Element14	0.1UF	C3216-1206	YAGEO	CC1206JRNPO9BN331		1		
C16	6	Capacitor (Semiconductor SIM Model)	330pF	3606090	Element14	0.1UF	C3216-1206	YAGEO	CC1206JRNPO9BN331		1		
C17	6	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C18	2	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
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C21	4	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C22	3	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
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C24	4	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C25	4	Capacitor (Semiconductor SIM Model)	1nF	1520277	element14	CAP SMD	C3216-1206	KEMET	C1206S102K5RACTU		1		
C26	4	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C27	5	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C28	5	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C29	5	Capacitor (Semiconductor SIM Model)	0.1uF	2522594	Element14	CAP SMD_603	C1608-0603	Kemet	C0603C104K5RAC7081		1		
C30	5	Polarized Capacitor SMD	10uF	1432577	Element14	Cap Tantalem	CASE_B	AVX	TPSB106K020R1000		1		
C31	5	Polarized Capacitor SMD	10uF	1432577	Element14	Cap Tantalem	CASE_B	AVX	TPSB106K020R1000		1		
CA-FPGA	10	USB-A to LA_USB-B_male		USBAB1ML	Startech	CA-USB_A_B_LA					1		
CA_GPS_1	10			E14/1583452		CA-X					1		
CA_GPS_2	10	RG178 MCX_RA to MCX_RA		E14/1349836	Element14	CA-GPS_NVX		Radiall	R284C0351066		1		
CN3	8	Header, 2-Pin		WM2722-ND	Digikey	2W_2.54pitch_connect	Molex 2P 2.54-	Molex	0022102021		1		
CN4	8	Header, 4-Pin		WM2724-ND	Digikey	4W_2.54pitch_RA_con	Molex 4P 2.54-	MOLEX	22-10-2041		1		
CN5	8	Header, 2-Pin		WM2722-ND	Digikey	2W_2.54pitch_connect	Molex 2P 2.54-	Molex	0022102021		1		
CN6	4	Connector JST 5 Pin		9492445	Element14	2mm ST4way	2mm ST5way	JST (JAPAN	B5B-PH-K-S(LF)(SN)		1		
D1	6	Diode BAT165	BAT165	1056502	Element14	Diode	SOD323	INFINEON	BAT 165 E6327		1		
GD1	7	Header, 10-Pin, Dual row		AMA-2251-1400-2MS		GPS_DIVIDER	GPS_DIVIDER_AMA-	Rojone			1	DO NOT PLACE	

Openttp Main Board R2.0												
JP1	5	Receptacle Header Assembly		681-2975	RS COMPONENTS	Jumper 3	SIP3	HARWIN	M20-9990345		1	
P1	3	U.FL		1688077	Element14	GPSDO_10MHz	U_FL_R	HIROSE(HRS)	U.FL-R-SMT-1(10)		1	
P2	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	EX_IO_TTL	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P3	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	EX_1PPS_IN	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P4	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	REF_1PPS	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P5	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	GPS_1PPS	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P6	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	REF_5MHz	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P7	6	SMA Right Angle Connector		ACX1426-ND / DNP	Digikey	REF_10MHz	SMA_RADIAL -	Amphenol RF Division	132289		1	DO NOT PLACE
P8	4	U.FL		1688077	Element14	GPSDO_LOCK	U_FL_R	HIROSE(HRS)	U.FL-R-SMT-1(10)		1	
P9	4	U.FL		1688077	Element14	GPSDO_1PPS	U_FL_R	HIROSE(HRS)	U.FL-R-SMT-1(10)		1	
Q1	6	NPN Darlington Bipolar Digital Transistor		1680283	Element14	DTC144ET	SOT23 - DTA_DTC	ROHM	DTC144EKAT146		1	
Q2	6	NPN Darlington Bipolar Digital Transistor		1680283	Element14	DTC144ET	SOT23 - DTA_DTC	ROHM	DTC144EKAT146		1	
R1	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R2	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R3	3	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R4	4	Rectangular Thick Film Chip Resistor, 10 Ohm	51R	2469506	Element14	RES_SMD_0805	C2012-0805	BOURNS	CR0805-JW-510ELF		1	
R5	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R6	4	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	9238727	Element14	RES_SMD_0603	C1608-0603	YAGEO	RC0603FR-07100KL		1	
R7	2	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603	YAGEO	RC0603FR-0710KL		1	
R8	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R9	2	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603	YAGEO	RC0603FR-0710KL		1	
R10	6	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343		RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R11	6	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343		RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R12	6	Rectangular Thick Film Chip Resistor, 10 Ohm	50R0	6314383/DNP		RES_SMD_0805	C2012-0805				1	DO NOT PLACE
R13	2	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603	YAGEO	RC0603FR-0710KL		1	
R14	2	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603	YAGEO	RC0603FR-0710KL		1	
R15	4	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	213-2367	RS COMPONENTS	RES_SMD_0603	C1608-0603	TE Connectivity	CRG0603F4K7		1	
R16	6	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343		RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R17	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	213-2367	RS COMPONENTS	RES_SMD_0603	C1608-0603	TE Connectivity	CRG0603F4K7		1	
R18	6	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	740-9066	RS COMPONENTS	RES_SMD_0805	C2012-0805	Bourns	CR0805-J/-000ELF		1	
R19	6	Rectangular Thick Film Chip Resistor, 10 Ohm	50R0	6314383/DNP		RES_SMD_0805	C2012-0805				1	DO NOT PLACE
R20	6	Rectangular Thick Film Chip Resistor, 10 Ohm	4K7	1738968	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEAHP		1	
R21	4	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343	Element14	RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R22	4	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343	Element14	RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R23	4	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343	Element14	RES_SMD_0603	C1608-0603	BOURNS	CR0603-J/-000ELF		1	
R24	6	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	740-9066	RS COMPONENTS	RES_SMD_0805	C2012-0805	Bourns	CR0805-J/-000ELF		1	
R25	5	Semiconductor Resistor	1 OHM	267-1569	RS COMPONENTS	Res Semi	AXIAL0.4	TE Connectivity	FRN25J1R0		1	
RA1	6	Header, 4-Pin, Dual row	220 X 4	1738895	Element14	Chip res 4X2 SMD	C1608-0603X4	VISHAY	CRCW0603220RFKEAHP		1	
RA2	6	Header, 4-Pin, Dual row	220 X 4	1738895	Element14	Chip res 4X2 SMD	C1608-0603X4	VISHAY	CRCW0603220RFKEAHP		1	
RA3	6	Header, 4-Pin, Dual row	220 X 4	223-2164	RS COMPONENTS	Chip res 4X2	C3216-1206X4	TE Connectivity	CRG1206F220R		1	
RA4	6	Header, 4-Pin, Dual row	220 X 4	223-2164	RS COMPONENTS	Chip res 4X2	C3216-1206X4	TE Connectivity	CRG1206F220R		1	
SM1	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM2	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM3	9	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SM4	7	SMTSO NUT		SMTSO-M3-8ET	AMPEC	SMTSO	SMTSO_M3-8ET	PENN Engineering	SMTSO-M3-8ET		1	
SM5	7	SMTSO NUT		SMTSO-M3-8ET	AMPEC	SMTSO	SMTSO_M3-8ET	PENN Engineering	SMTSO-M3-8ET		1	
SM6	7	SMTSO NUT		SMTSO-M3-8ET	AMPEC	SMTSO	SMTSO_M3-8ET	PENN Engineering	SMTSO-M3-8ET		1	
SM7	7	SMTSO NUT		SMTSO-M3-8ET	AMPEC	SMTSO	SMTSO_M3-8ET	PENN Engineering	SMTSO-M3-8ET		1	
SM8	9	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SM9	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM10	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM11	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM12	4	SMTSO NUT		SMTSO-M25-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M25-2ET		1	
SM13	5	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SM14	5	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SM15	5	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SM16	5	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1	
SW1	2	Toggle switch		119-3513	RS COMPONENTS	Button NO	SW_RA_NO	Apem	9233WWCD		1	DO NOT PLACE

Openttp Main Board R2.0												
U1	4	Buffer		1902175	Element14	74LVC3G34DCTR	SSOP8	TEXAS INSTRUMENTS	SN74LVC3G34DCTR		1	
U2	4	ESD protection	Value	1269406	Element14	USBLC6	SOT-23-6L-6PIN	STMICROELECTRONI	USBLC6-2SC6		1	
U3	3	Clock Buffer		2492597	Element14	CDCLVC1103PW	TSSOP-8-PW	TEXAS INSTRUMENTS	CDCLVC1103PW		1	
U4	6	Inverted Buffer schmit Trigger		1470884	Element14	74LVC2G14DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	SN74LVC2G14DBVR		1	
U5	6	Bi directional level translator		2335615	Element14	TXS0101DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	TXS0101DBVR		1	
U6	4	Buffer	SN74LVC2G34D	1470888	Element14	74LVC2G34DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	SN74LVC2G34DBVR		1	
U7	5	Buffer		1494933	Element14	74LVC1G34DBVR	SOT-23-5PIN	TEXAS INSTRUMENTS	SN74LVC1G34DBVT		1	
U8	6	Clock Buffer		RS/7876933	RS COMPONENTS	NB3N551	SOIC-8	ON Semiconductor	NB3N551DR2G		1	
U9	6	Clock Buffer		787-6933	RS COMPONENTS	NB3N551	SOIC-8	ON Semiconductor	NB3N551DR2G		1	
U10	6	Clock Buffer		714-5012	RS COMPONENTS	ICSS42	SOIC-8	IDT	ICSS42MILF		1	
U11	6	Octal Buffer and Line Driver with 3-State		9591273	Element14	SN74HC244DW	SO-G20/G7.1	TEXAS INSTRUMENTS	SN74HC244DWR		1	
U12	2	Voltage Monitor		296-2636-1-ND	Digikey	TPS3825DBV	SOT-23-5PIN	Texas Instruments	TPS3825-33DBVT		1	
U13	2	Buffer		296-8485-1-ND	Digikey	74LVC1G07DBVR	SOT-23-5PIN	Texas Instruments	SN74LVC1G07DBVR		1	
U14	5	Buffer	SN74LVC2G34D	1470888	Element14	74LVC2G34DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	SN74LVC2G34DBVR		1	
U15	5	Buffer	SN74LVC2G34D	1470888	Element14	74LVC2G34DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	SN74LVC2G34DBVR		1	
U16	3	DLVDS Diff Line Driver		2101237	Element14	DS90LT011ATMF	SOT-23-5PIN	TEXAS INSTRUMENTS	DS90LV011ATMF/NOPB		1	
U17	4	Temp Monitor		DS18B20Z+-ND	Digikey	DS18B20Z	SOIC-8	Maxim Integrated	DS18B20Z+		1	
U18	5	Buffer	SN74LVC2G34D	1470888	Element14	74LVC2G34DBVR	SOT-23-6PIN	TEXAS INSTRUMENTS	SN74LVC2G34DBVR		1	
U19	3	DLVDS Diff Line Driver		2335494	Element14	DS90LT012	SOT-23-5PIN		DS90LT012AQMFE/NOPB		1	
VR1	4	Voltage Regulator		LM1117MP-	Digikey	LM1117MP-3.3	DSO-G3/SOT223	Texas Instruments	LM1117MP-3.3/NOPB		1	
ZD1	6	Zener Diode	BZX84-B3V3	1081404	Element14	5.6VZ	SOT23 -3PIN_DIODE	NEXPERIA	BZX84-B5V6		1	
										0		0
Approved			Notes									





Bill of Materials				Bill of Materials For Project [OPENTTP_MOUNTPCB_V2.PrjPcb] (No PCB Document Selected)									
Source Data From:													
Project:				OPENTTP_MOUNTPCB_V2.PrjPcb									
Variant:				None									
Creation Date: 10/23/2017 3:08:37 PM													
Print Date: 23-Oct-17 3:09:43 PM													
Designator	SheetNum	Description	Value	Order Code	Supplier	Comment	Footprint	MFG	MFG PN	#Column Name Error:Qty	Quantity	Note	Name Error:Unit Cost
C1	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C2	1	Solid Tantalum Chip Capacitor, Standard T491	10u0	478-1655-1-ND	Digikey	T491A	CASE_A	AVX	TAJA106K016RNJ		1		
C3	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C4	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C5	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C6	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C7	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C8	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C9	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C10	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C11	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C12	1	Solid Tantalum Chip Capacitor, Standard T491	10u0	478-1655-1-ND	Digikey	T491A	CASE_A	AVX	TAJA106K016RNJ		1		
C13	1	Solid Tantalum Chip Capacitor, Standard T491	10u0	478-1655-1-ND	Digikey	T491A	CASE_A	AVX	TAJA106K016RNJ		1		
C14	1	Capacitor (Semiconductor SIM Model)	4u7	1817928	Element14	CAP SMD_603	C1608-0603	YAGEO	CC0603MRX5R5BB475		1		
C15	1	Capacitor (Semiconductor SIM Model)	1uF	2112839	Element14	CAP SMD_603	C1608-0603	TAIYO YUDEN	EMK107B7105KA-T		1		
C16	1	Capacitor (Semiconductor SIM Model)	1n0*	DNP		CAP SMD_603	C1608-0603				1	DO NOT PLACE	
C17	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C18	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C19	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C20	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C21	1	Capacitor (Semiconductor SIM Model)	1nF	723-6691	RS COMPONENTS	CAP SMD	C3216-1206	Murata	GRM319R71H102KA01D		1		
C22	1	Capacitor (Semiconductor SIM Model)	18pF	1414673	Element14	CAP SMD_805	C2012-0805	KEMET	C0805C180J5GACTU		1		
C23	1	Capacitor (Semiconductor SIM Model)	18pF	1414673	Element14	CAP SMD_805	C2012-0805	KEMET	C0805C180J5GACTU		1		
C24	1	Capacitor (Semiconductor SIM Model)	0.1uF	2644416		CAP SMD_805	C2012-0805		C0805C104K5RACTU		1		
C25	1	Capacitor (Semiconductor SIM Model)	1uF	9227792	Element14	CAP SMD_805	C2012-0805	KEMET	C0805C105K4RACTU		1		
C26	1	Capacitor (Semiconductor SIM Model)	4.7uF	1845746	Element14	CAP SMD_805	C2012-0805	MURATA	C1206S102K5RACTU		1		
C27	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C28	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C29	1	Capacitor (Semiconductor SIM Model)	1uF	2112839	Element14	CAP SMD_603	C1608-0603	TAIYO YUDEN	EMK107B7105KA-T		1		
C30	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C31	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C32	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C33	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C34	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C35	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C36	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C37	1	Capacitor (Semiconductor SIM Model)	0.1uF	2112833	Element14	CAP SMD_603	C1608-0603		C0603C104K8RACTU		1		
C38	1	Capacitor (Semiconductor SIM Model)	4.7uF	1845746	Element14	CAP SMD_805	C2012-0805	MURATA	C1206S102K5RACTU		1		
CN1	1	PC PWR 4 pin		WM2724-ND	Digikey	Molex 2.54X4	Molex 22-10-2041	Molex	0022102041		1		
CN2	1	Connector JST 4 Pin		455-1672-ND	Digikey	2mm ST/4way	1.5mm Header 5 PIN	JST (JAPAN)	S5B-ZR		1		
DN1	1	Connector JST 5 Pin		9492496	Element14	2mm ST/4way	2mm ST5way -RA	JST (JAPAN)	S5B-PH-K-S		1		
DN2	1	Connector JST 5 Pin		9492496	Element14	2mm ST/4way	2mm ST5way -RA	JST (JAPAN)	S5B-PH-K-S		1		
DN3	1	Connector JST 5 Pin		9492496	Element14	2mm ST/4way	2mm ST5way -RA	JST (JAPAN)	S5B-PH-K-S		1		
DN4	1	Connector JST 5 Pin		9492496	Element14	2mm ST/4way	2mm ST5way -RA	JST (JAPAN)	S5B-PH-K-S		1		
DN5	1	Header, 8-Pin		1450206	Element14	USB_SINGLE	USB_SINGLE_H_RA	Molex	67643-0910		1		

DN6	1	Header, 8-Pin		1450206	Element14	USB_SINGLE	USB_SINGLE_H_RA	Molex	67643-0910		1		
DN7	1	Header, 8-Pin		1450206	Element14	USB_SINGLE	USB_SINGLE_H_RA	Molex	67643-0910		1		
LED1	1	Typical RED, GREEN, YELLOW, AMBER GaAs		320-8724	RS COMPONENTS	LED_SMD	C805-SMD_LED	ROHM	SML-210MTT86		1		
LED2	1	Typical RED, GREEN, YELLOW, AMBER GaAs		320-8724	RS COMPONENTS	LED_SMD	C805-SMD_LED	ROHM	SML-210MTT86		1		
PC1	1	Header, 10-Pin, Dual row				HDMI_PANELMOUNT	HDMI_MOUNT				1	DO NOT PLACE	
R1	1	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R2	1	Rectangular Thick Film Chip Resistor, 10 Ohm	0R0	2008343	Element14	RES_SMD_0603	C1608-0603		CR0805-JW-510ELF		1		
R3	1	Rectangular Thick Film Chip Resistor, 10 Ohm	1K	213-2266	RS COMPONENTS	RES_SMD_0603	C1608-0603		CRG0603F1K0		1		
R4	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	1738931	Element14	RES_SMD_0603	C1608-0603		CRCW0603100KFKEAHP		1		
R5	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	9238727	Element14	RES_SMD_0603	C1608-0603		RC0603FR-07100KL		1		
R6	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	923-8727	Element14	RES_SMD_0603	C1608-0603		RC0603FR-07100KL		1		
R7	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	9238727	Element14	RES_SMD_0603	C1608-0603		RC0603FR-07100KL		1		
R8	1	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R9	1	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R10	1	Rectangular Thick Film Chip Resistor, 10 Ohm	300R0	213-2200	RS COMPONENTS	RES_SMD_0603	C1608-0603		CRG0603F330R		1		
R11	1	Rectangular Thick Film Chip Resistor, 10 Ohm	10K	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R12	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	923-8727	Element14	RES_SMD_0603	C1608-0603		RC0603FR-07100KL		1		
R13	1	Rectangular Thick Film Chip Resistor, 10 Ohm	100K	223-0691	RS COMPONENTS	RES_SMD_0805	C2012-0805	TE Connectivity	CRG0805F100K		1		
R14	1	Rectangular Thick Film Chip Resistor, 10 Ohm	12K	223-0578	RS COMPONENTS	RES_SMD_0805	C2012-0805	TE Connectivity	CRG0805F12K		1		
R15	1	Rectangular Thick Film Chip Resistor, 10 Ohm	1M	223-0821	RS COMPONENTS	RES_SMD_0805	C2012-0805	TE Connectivity	CRG0805F1M0		1		
R16	1	Rectangular Thick Film Chip Resistor, 10 Ohm	1K	213-2266	RS COMPONENTS	RES_SMD_0603	C1608-0603		CRG0603F1K0		1		
R17	1	Rectangular Thick Film Chip Resistor, 10 Ohm	10DNP	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R18	1	Rectangular Thick Film Chip Resistor, 10 Ohm	DNP	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
R19	1	Rectangular Thick Film Chip Resistor, 10 Ohm	DNP	9238603	Element14	RES_SMD_0603	C1608-0603		RC0603FR-0710KL		1		
SM1	1	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1		
SM2	1	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1		
SM3	1	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1		
SM4	1	SMTSO NUT		SMTSO-M3-2ET	AMPEC	SMTSO	SMTSO_M3-2ET	PENN Engineering	SMTSO-M3-2ET		1		
TP1	1	Test Point terminal				GND	Test terminal				1	DO NOT MOUNT	
U1	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U2	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U3	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U4	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U5	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U6	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U7	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U8	1	ESD protection	Value	497-5235-1-ND	DigiKey	USBLC6	SOT-23-6L-6PIN	STMicroelectronics	USBLC6-2SC6		1		
U9	1	Voltage Regulator		9490647-DK/LM1086IS	Element14	VOLREG_LT1086CM_	DD_PAK3_HS -		LM1086IS-3.3/NOPB		1		
U10	1	USBHIGH SIDE SWITCH		576-1083-ND	Digikey	MIC2505YM	SOIC-8	Microchip	MIC2505YM		1		
U11	1	USBHIGH SIDE SWITCH		576-1084-ND	Digikey	MIC2506YM	SOIC-8	Microchip	MIC2506YM		1		
U12	1	USBHIGH SIDE SWITCH		576-1084-N	Digikey	MIC2506YM	SOIC-8	Microchip	MIC2506YM		1		
U13	1	USBHIGH SIDE SWITCH		576-1084-ND	Digikey	MIC2506YM	SOIC-8	Microchip	MIC2506YM		1		
U14	1	C, 7-PORT USB 2.0 HUB CONTRL, 64VQFN		USB2517I-JZX-CT-ND	Digikey	USB2517I-JEZ	USB2517	Microchip	USB2517I-JZX-TR		1		
Y1	1	Crystal	24.00MHz	1640905	Element14	49USMX	49usmx	EUROQUARTZ	24.000MHZ 49USMX		1		
Approved										0			0
Notes													



# Bill of Materials

Bill of Materials For Project [OPENTTP\_PWRCNTL\_V2.PrjPcb] (No PCB Document Selected)

Source Data From:

Project: OPENTTP\_PWRCNTL\_V2.PrjPcb  
 Variant: OPENTTP\_PWRCNTL\_V2.PrjPcb  
None

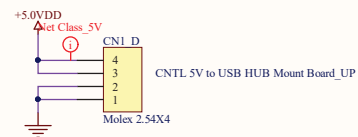
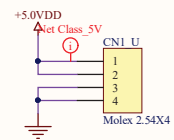
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

Designator	SheetNum	Description	#Column Name	Order Code	Supplier	Comment	Footprint	MFG	MFG PN	Quantity
C1	1	Polarized Capacitor SMD		1190129	Element14	Cap Tantalem	Cap Tanta	MULTICOMP	MCCTC106M025	1
C2	1	Capacitor (Semiconductor SIM Model)		1828956	Element14	0.1uF	C3216-1206	MURATA	GRM319R71H104KA01D	1
C3	1	Polarized Capacitor SMD		1190129	Element14	Cap Tantalem	Cap Tanta	MULTICOMP	MCCTC106M025	1
C4	1	Capacitor (Semiconductor SIM Model)		1828956	Element14	0.1uF	C3216-1206	MURATA	GRM319R71H104KA01D	1
C5	1	Capacitor (Semiconductor SIM Model)		8820023	Element14	CAP SMD_603	C1608-0603	MURATA	GRM188R71H104KA93D	1
C6	1	Capacitor (Semiconductor SIM Model)		8820023	Element14	CAP SMD_603	C1608-0603	MURATA	GRM188R71H104KA93D	1
C7	1	Capacitor (Semiconductor SIM Model)		1828956	Element14	0.1uF	C3216-1206	MURATA	GRM319R71H104KA01D	1
C8	1	Capacitor (Semiconductor SIM Model)		1828956	Element14	0.1uF	C3216-1206	MURATA	GRM319R71H104KA01D	1
CN1	1	PC PWR 4 pin		WM2724-ND	DigiKey	Molex 2.54X4	Molex 22-10-2041	Molex	0022102041	1
CN2	1	Header, 4-Pin		WM16136-ND	Digikey	4W_2.54pitch_RA_con	Molex 4P 2.54- RA	Molex	0022124042	1
CN3	1	Header, 2-Pin		486-9831	RS Components	2W_2.54pitch_connect	SKT_2_MOLEX_44812	Molex	44812-0002	1
CN4	1	PC PWR 5pin		486-9853	RS COMPONENTS	Molex 2.54X5	HDR_4_MOLEX_4481	Molex	44812-0004	1
CN5	1	Header, 2-Pin		486-9831	RS Components	2W_2.54pitch_connect	SKT_2_MOLEX_44812	Molex	44812-0002	1
D1	1	Diode		2345408	Element14	PMEG3050EP	SOD128	NXP	PMEG3050EP,115	1
D2	1	Diode		760-2925	RS COMPONENTS	Diode_Switching	TminiP2	PANASONIC	DB2430700L	1
D3	1	Diode		760-2925	RS COMPONENTS	Diode_Switching	TminiP2	PANASONIC	DB2430700L	1
F1	1	Fuse		9922113	Element14	5A	Fuse PCB axial	LITTELFUSE	0473005.MRT1L	1
F2	1	Fuse		9922091	Element14	3A	Fuse PCB axial	LITTELFUSE	0473003.MRT1L	1
F3	1	Fuse		9922091	Element14	3A	Fuse PCB axial	LITTELFUSE	0473003.MRT1L	1
F4	1	Fuse		9922091	Element14	3A	Fuse PCB axial	LITTELFUSE	0473003.MRT1L	1
Q1	1	NPN Darlington Bipolar Digital Transistor		246-1738P	RS COMPONENTS	DTC144ET	SOT23 - DTA_DTC	ROHM	DTC144EKAT146	1
R1	1	Semiconductor Resistor		2333581	Element14	Res SMD	C3216-1206	BOURNS	CR1206-FX-2200ELF	1
R2	1	Rectangular Thick Film Chip Resistor, 10 Ohm		1469923	Element14	RES_SMD_0805	C2012-0805	VISHAY	CRCW08054K70FKEA	1
U1	1	6-Pin Phototransistor Optocoupler		255-4244-5-ND	Digikey	AQV251G	DIP-6	Panasonic Electric	AQV251G	1
U2	1	6-Pin Phototransistor Optocoupler		255-4244-5-ND	Digikey	AQV251G	DIP-6	Panasonic Electric	AQV251G	1
VR3V3	1	Voltage Regulator		LMS1587IS-3.3/NOPB-	Digikey	LMS1587A3_3	TO-263_HS -	TEXAS INSTRUMENTS	LMS1587IS-3.3/NOPB	1
VR5V0	1	Voltage Regulator		LM1084IS-5.0/NOPB	Digikey	LM1084IS5_0	TO-263_HS -	Texas Instruments	LM1084IS-5.0/NOPB	1

Approved

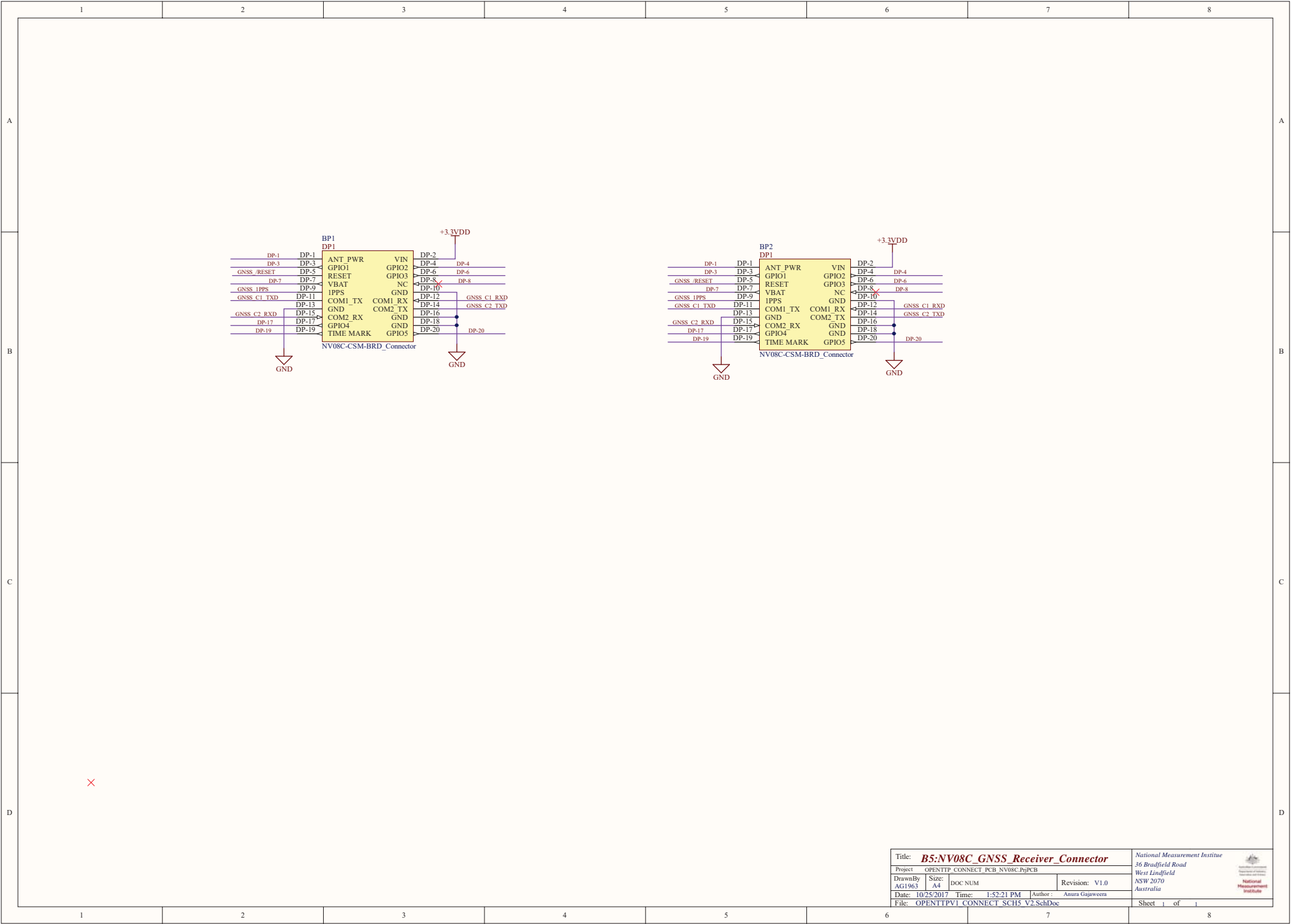
Notes





Title: <b>Openttp_V2 USBPWR Connector</b>				National Measurement Institute		 National Measurement Institute Australian Government Department of Industry, Science and Energy
Project: OPENTTP_USBPWR_V2_PjYcb				36 Bradfield Road		
DrawnBy: AGI963	Size: A4	DOC NUM: OPENTTP_USBPWR_V2	Revision: V1.0	West Lindfield		
Date: 10/25/2017 Time: 1:43:25 PM Author:				NSW 2070		
File: OPENTTP_USBPWR_V2_SchDoc				Australia		
				Sheet 3 of 9		 National Measurement Institute Australian Government Department of Industry, Science and Energy

Bill of Materials											Bill of Materials For Project [OPENTTP_USBPOWER_V2.PrjPcb] (No PCB Document Selected)
Source Data From:		<div>OPENTTP_USBPOWER_V2.PrjPcb</div> <div>Project: OPENTTP_USBPOWER_V2.PrjPcb</div> <div>Variant: None</div>									
Creation Date:		10/25/2017 1:36:26 PM									
Print Date:		25-Oct-17 1:36:29 PM									
Designator	SheetNum	Description	#Column Name Error	Order Code	Supplier	Comment	Footprint	MFG	MFG PN	#Column Name Error:Qty	Quantity
CN1_D	3	PC PWR 4 pin		670-2979	RS COMPONENTS	Molex 2.54X4	Molex 22-16-2041	Molex	0022162041		1
CN1_U	3	PC PWR 4 pin		670-2979	RS COMPONENTS	Molex 2.54X4	Molex 22-16-2041	Molex	0022162041		1
										0	
Approved			Notes								





# Bill of Materials

B5:NV08C\_GNSS\_Receiver\_ConnectoB5:NV08C\_GNSS\_Receiver\_Connector

Source Data From:		OPENTTP_CONNECT_PCB_NV08C.PrjPCB											
Project:		OPENTTP_CONNECT_PCB_NV08C.PrjPCB											
Variant:		None											
Creation Date:		10/25/2017 2:33:46 PM											
Print Date:		25-Oct-17 2:35:59 PM											
Designator	SheetNum	Description	#Column Name Error	#Column Name Error:Orig	#Column Name Error:Sub	Comment	Footprint	#Column Name Error:MFG	#Column Name Error:MFG P	#Column Name Error:Qty	Quantity	Column Name Error:NOT	Name Error:Unit Cost
BP1, BP2	1	Header, 10-Pin, Dual row				NV08C-CSM-	NV08C-CSM-BRD -				2		
Approved										0			0
Notes													