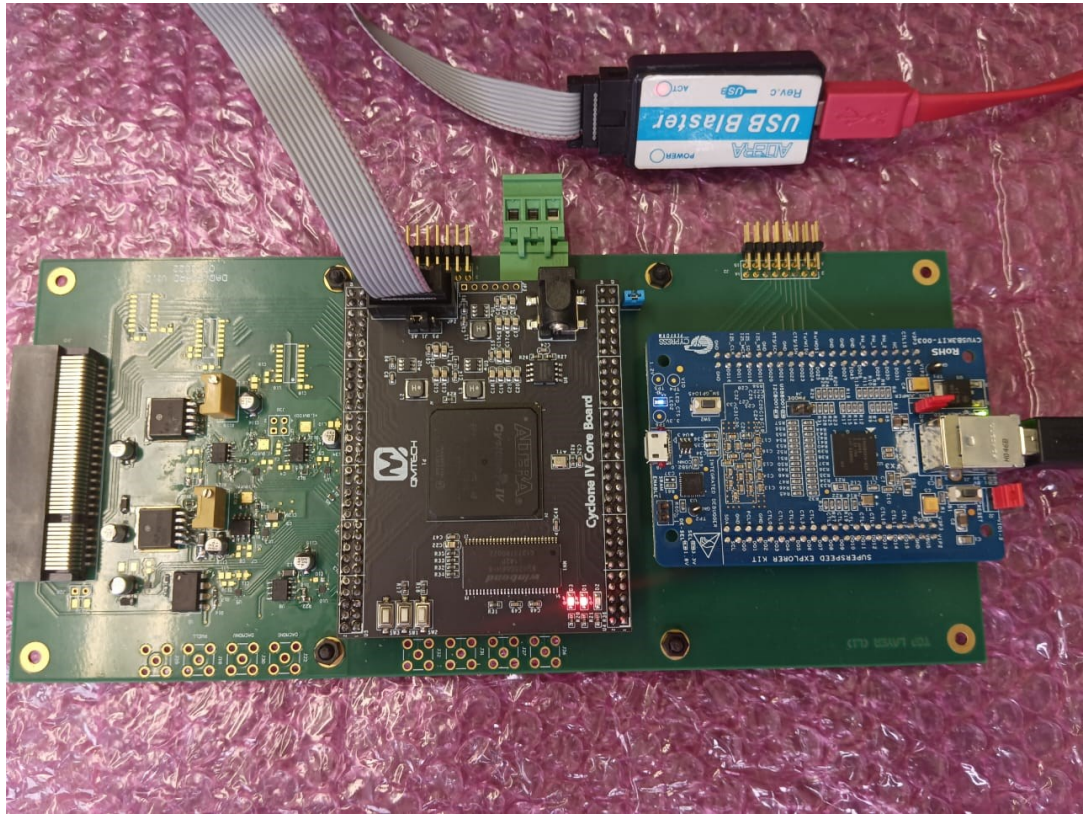
Electronic Status

Raúl Arteche Díaz

STS Department Meeting,2021.10.03

JINR DAQ Board.



- The digital part of the first DAQ board prototype is already mounted, the system is under test.
- The firmware running on the original DAQ board is already ported to this new board.
- The USB communication with the Altera FPGA is under test.
- The next step will be the testing of the interface with the analog part of the design.

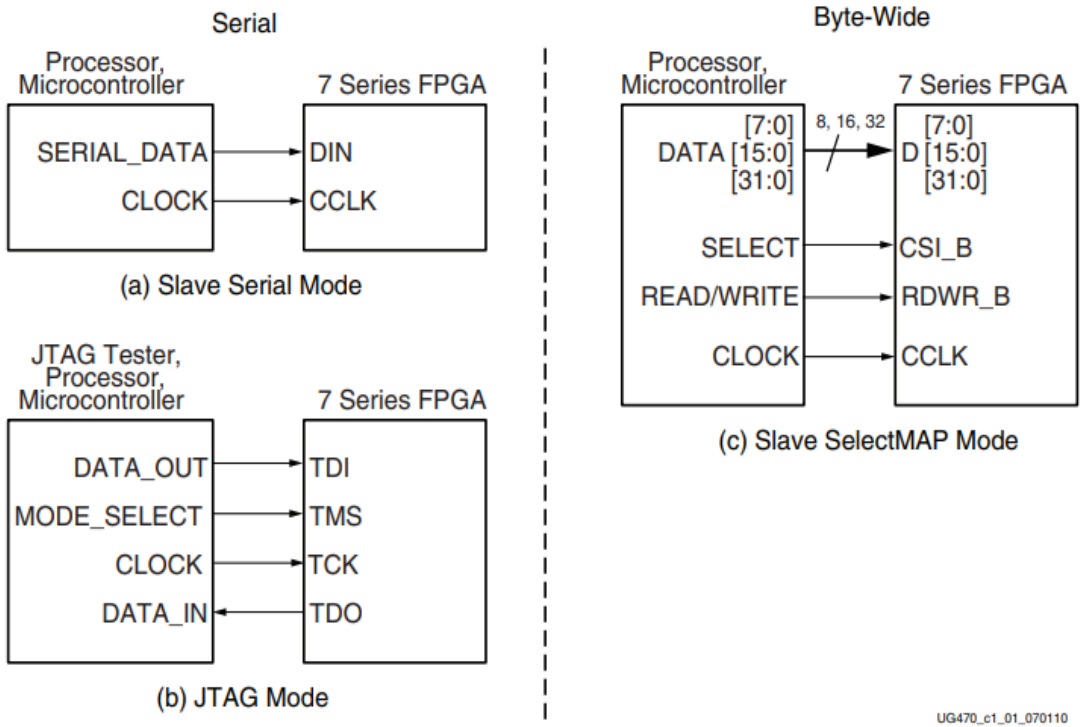
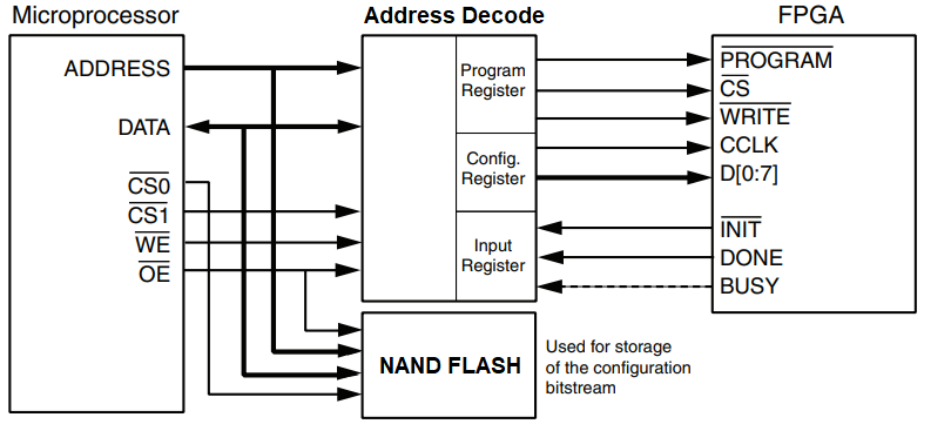


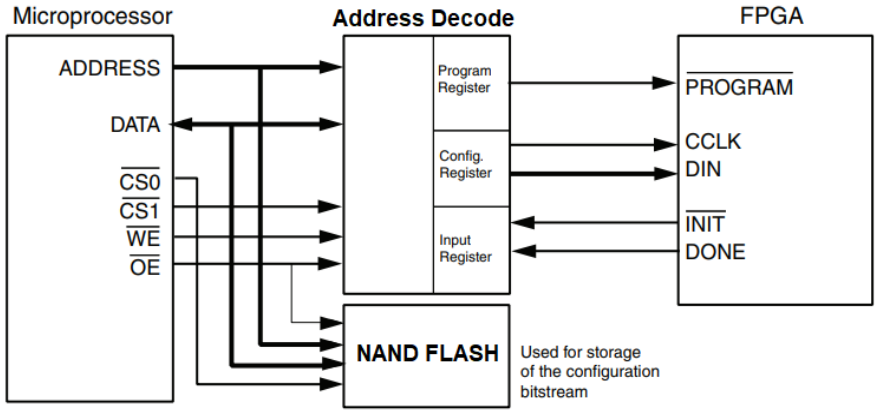
Figure 1-1: **Slave Configuration Modes**

The Slave Serial mode is extremely simple, consisting only of a clock and serial data input. The JTAG mode is also a simple serial configuration mode, popular for prototyping and highly utilized for board test. The Slave SelectMAP mode is a simple x8-, x16-, or x32-bit-wide processor peripheral interface, including a chip-select input and a read/write control input.

7 Series FPGAs Configuration User Guide (UG470)



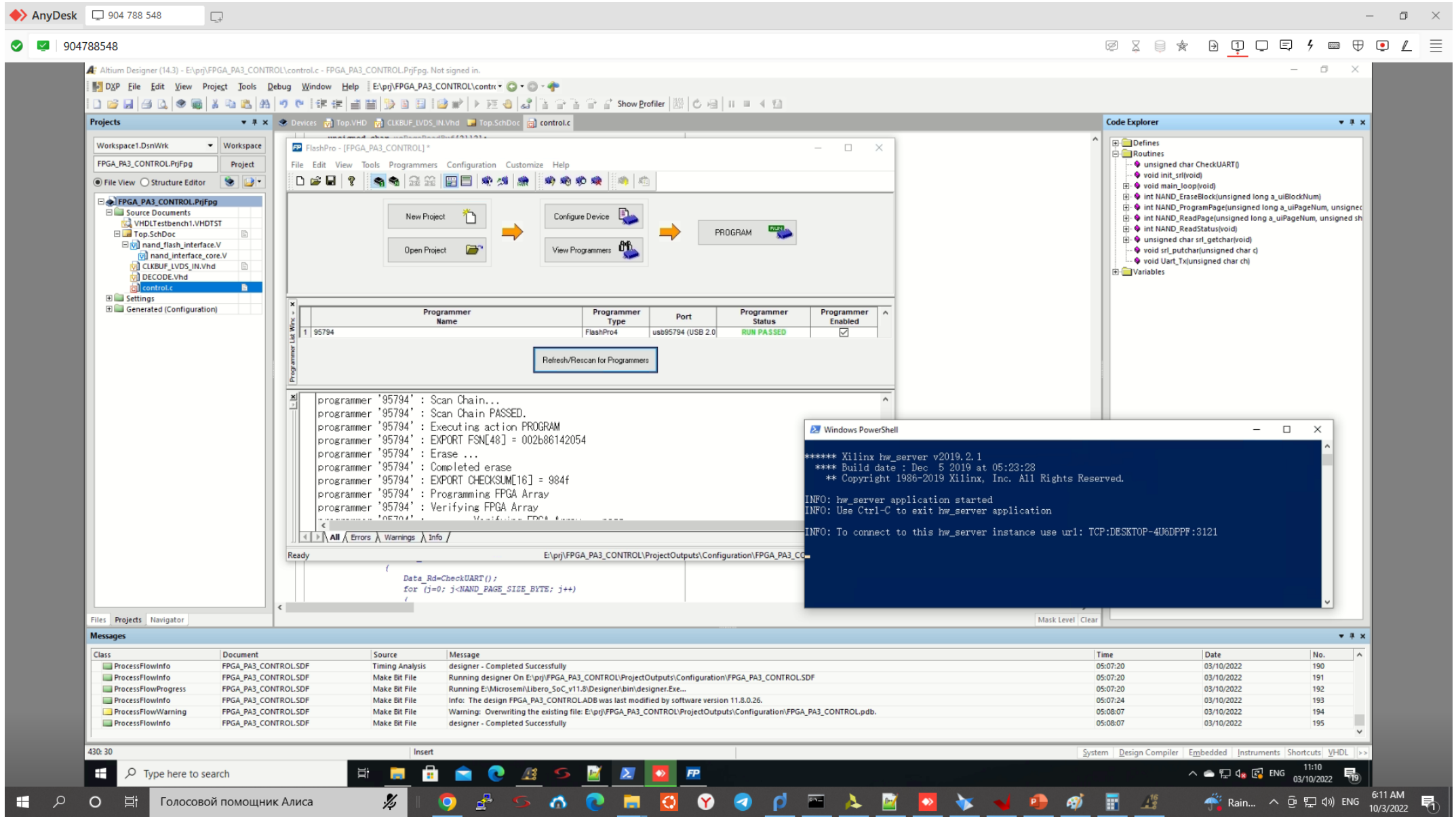
SelectMAP Configuration



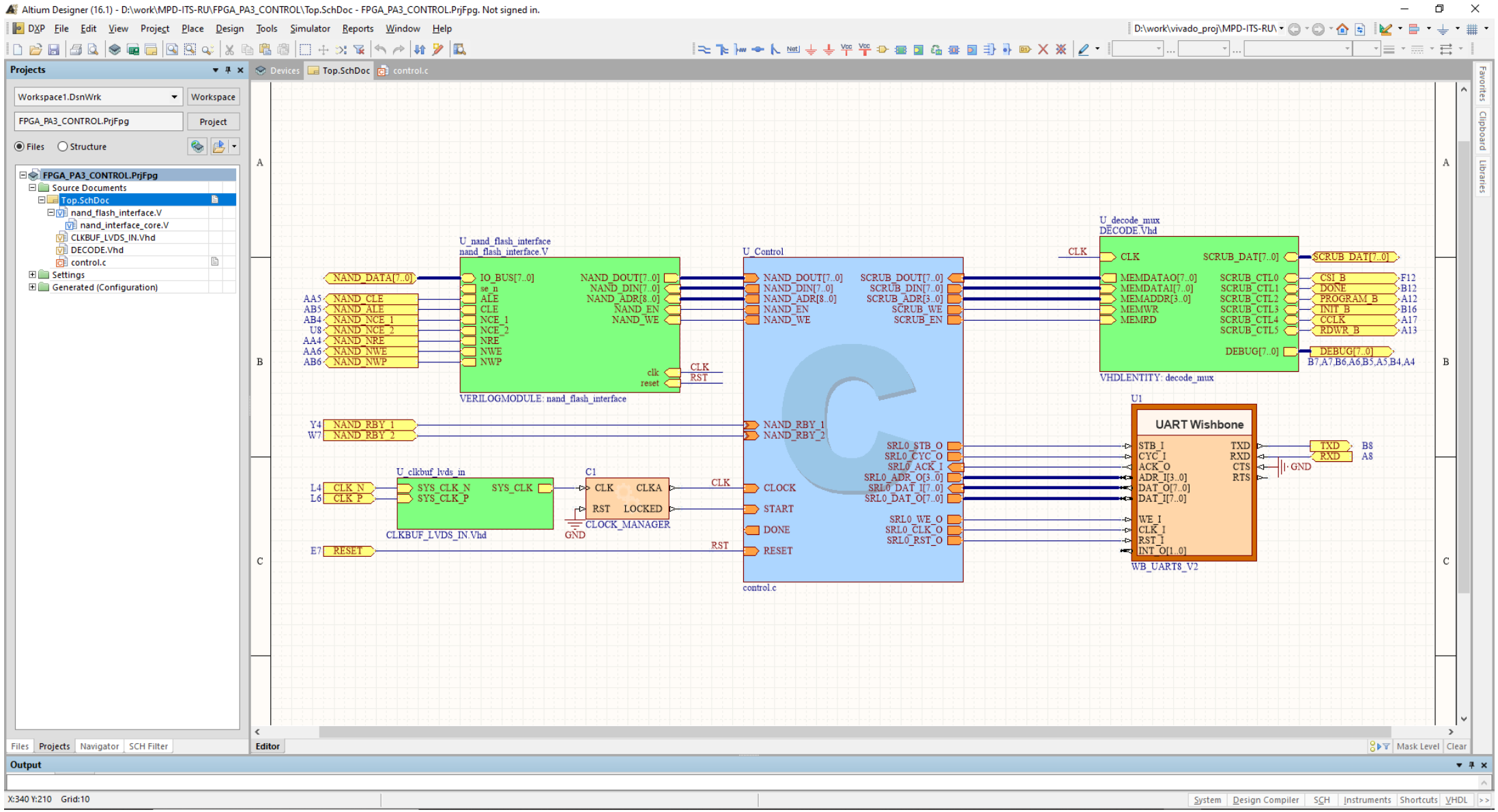
Slave Serial Configuration

Using a Microprocessor to Configure Xilinx FPGAs via Slave Serial or SelectMAP Mode Application Note (XAPP502)

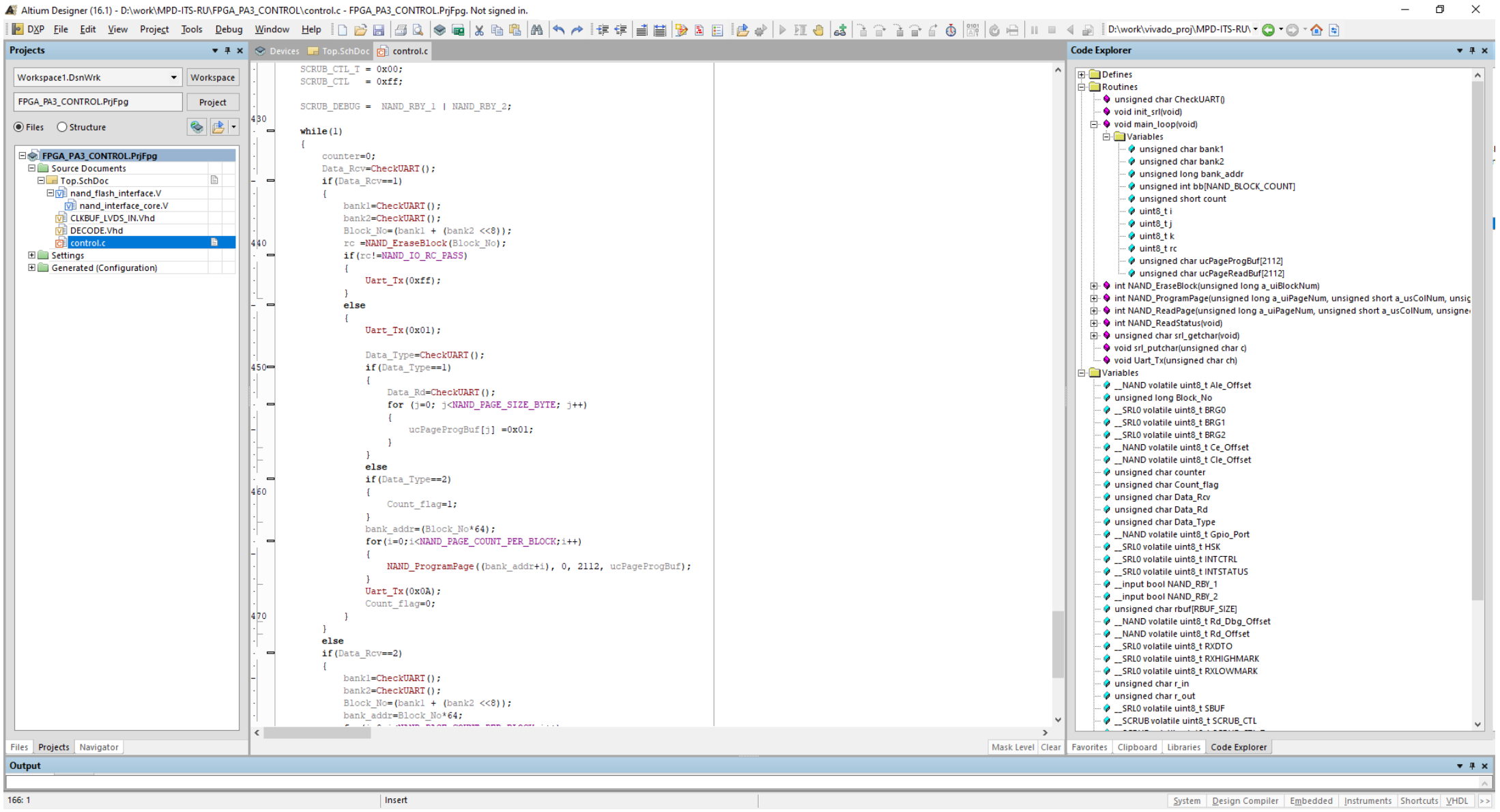
REMOTE SETUP



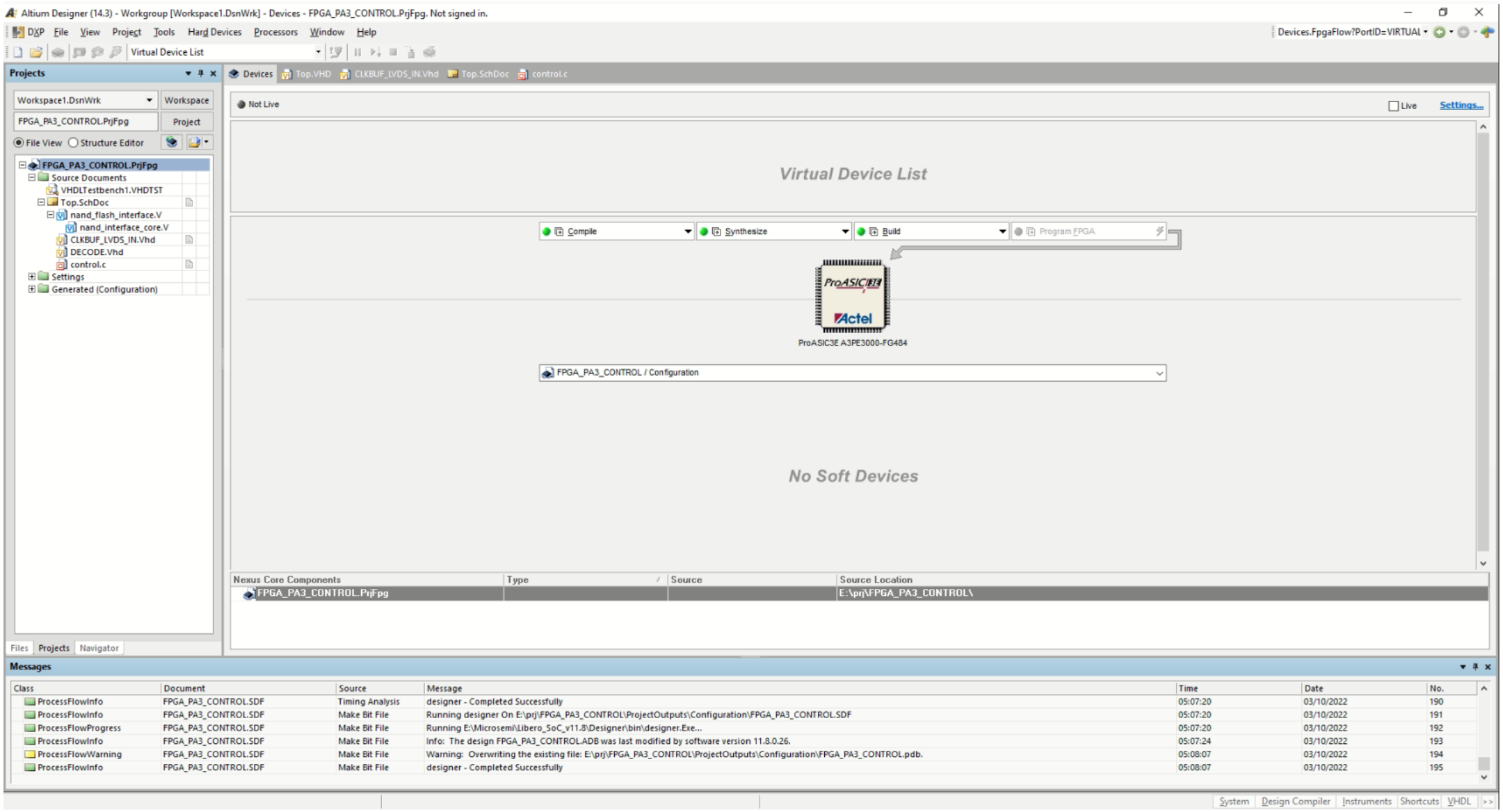
AUX FPGA LOGIC



ALTIUM CHC (C to Hardware)



TOOL WORKFLOW

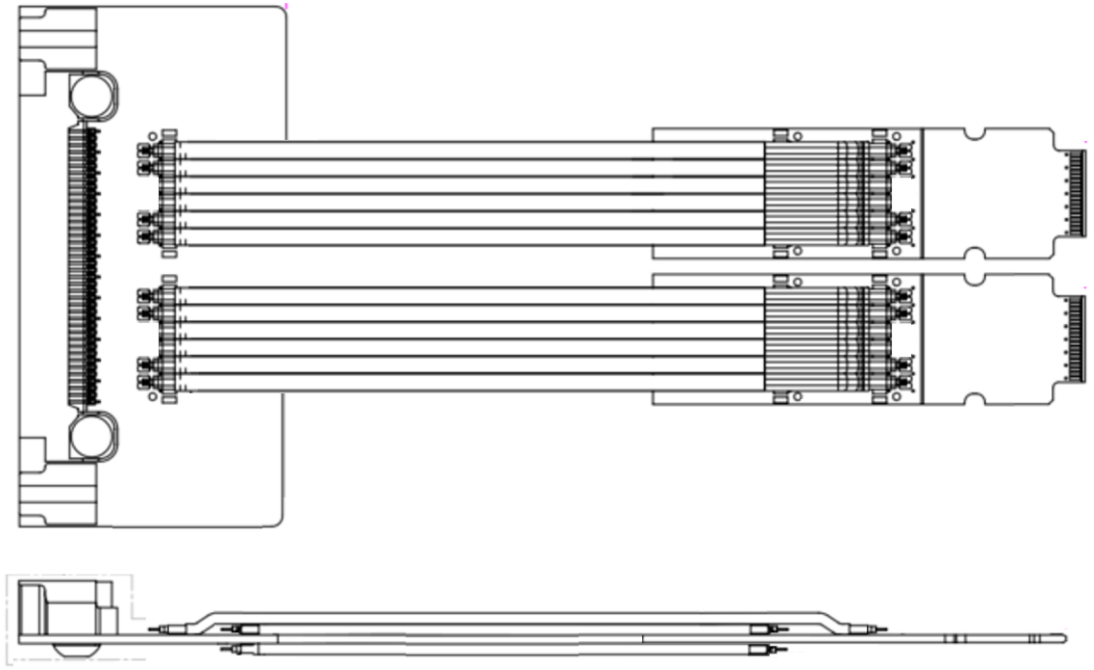


DATA CABLES

Part Number	Plating	Typical application	Drawing
SL8801/12-10DA5-00 SL8801/12-11DA5-00	Silver Tin	MiniSAS SFF 8087 with sidebands	78-5100-2412-4

3M Twinax Cable.

Cross Section



Tree different length of prototype cables base on the 3M cable SL8801/12-11DA5, will be constructed and tested.

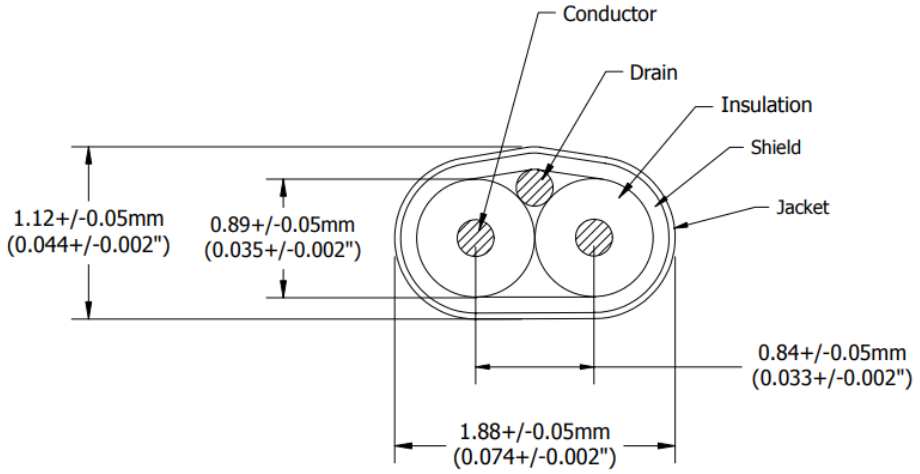
The current status of the cable is as follows.

1. 3M cable SL8801/12-11DA5-00 - we need more than 60 rolls in total. Right now only 30 rolls are in the stocks. We asked for 3 rolls only at the moment.

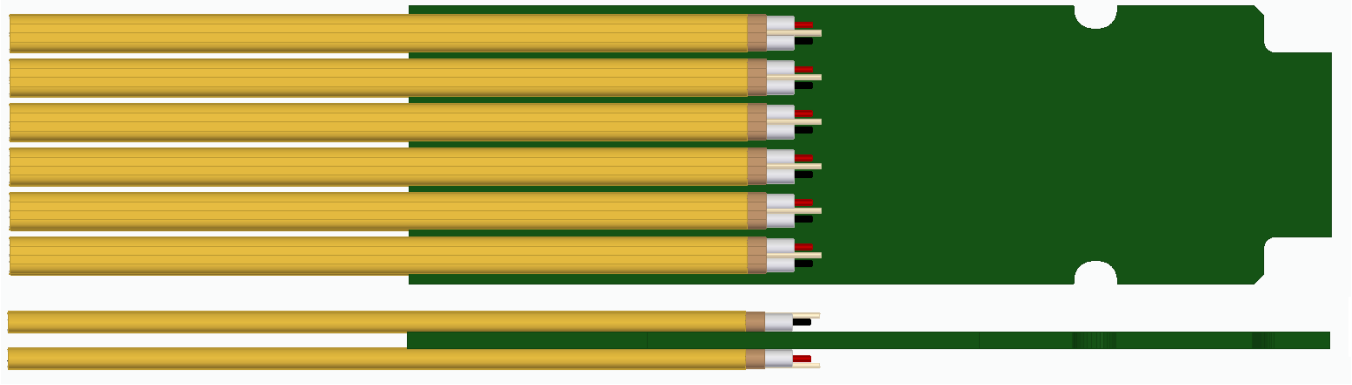
Temp-Flex TwinMax High-Temperature, Low-Loss Twinax Cable .

TEMP-FLEX a molex company

TITLE	PART No.	REV	PAGE
Shielded Pair 30 AWG, 100 Ohm Twinax	1000680107	C	1 of 1



Construction:
Conductor: 30 AWG, 0.27mm (0.0107") Solid SPC.
Insulation: Fluoropolymer
Drain Wire: 30 AWG, 0.25mm (0.010") Solid SPC.
Shield: Aluminum / Polyester Foil, 0.023mm (0.0009") Thickness Ref.
Jacket: Polyester, Heat Sealed, 0.08mm (0.0007") Thickness Ref.
Safety Compliance: AWM STYLE 22058



4 unit per stave.

We have to check the actual availability, we need around 20,2 Km for 42 stave.
Molex produce roles of 60m.

Backup

00009045	DATA SHEET	LAPP
Valid from: 23.05.2022	EPIC® SIGNAL R 3.0 D PG16	

Description

- Circular connectors with solder termination
- 21-pin and 26-pin
- highest contact density at small space requirements
- Connector in solder version for easy maintanance

General Characteristics

Series	SIGNAL R 3.0 D
Number of contacts	21-pin / 26-pin
Pin configuration	Male E-part / Female P-part
Coding	N
Rated voltage (V)	24V AC / 60VDC
Rated impulse voltage	1,5 kV
Rated current (A)	7,5 A
Contact resistance	< 3 mOhm
Contacts	Copper alloy, gold plated
Termination methods	Solder termination: up to 1.0 mm²
Cable clamping range	6,5-16
Protection	IP 67 (maximum, dependant on cable gland used)
Cycle of mechanical operation	500
Temperature range	-40°C to +100°C, short-term up to +125°C

00009371	DATA SHEET	LAPP
Valid from: 23.05.2022	EPIC® SIGNAL R 3.0 G1	

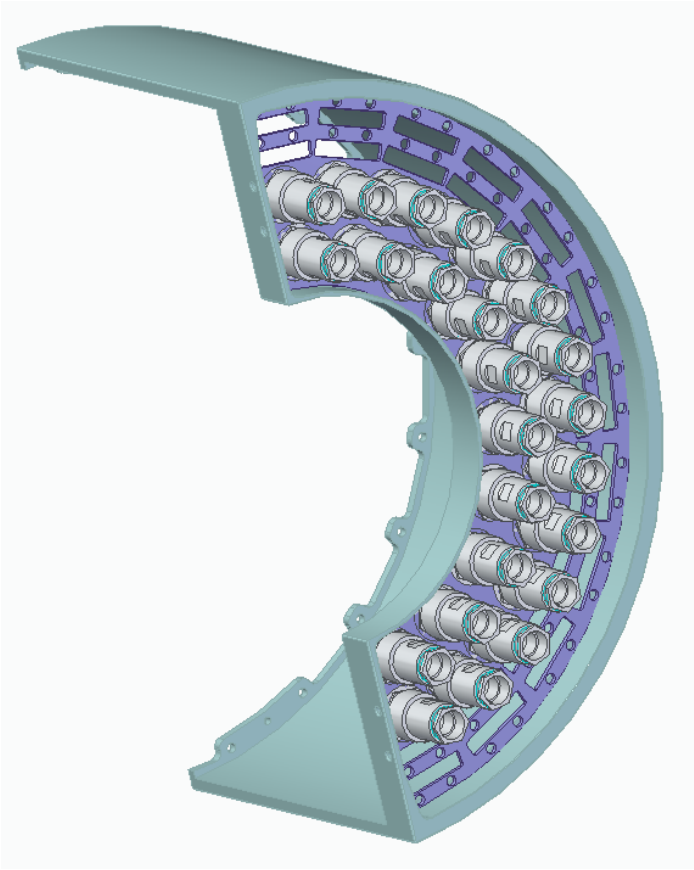
Description

- Circular connectors with solder termination
- 21-pin and 26-pin
- highest contact density at small space requirements
- Connector in solder version for easy maintanance

General Characteristics

Series	SIGNAL R 3.0 G1
Number of contacts	21-pin / 26-pin
Pin configuration	Male E-part / Female P-part
Coding	N
Rated voltage (V)	24V AC / 60VDC
Rated impulse voltage	1,5 kV
Rated current (A)	7,5 A
Contact resistance	< 3 mOhm
Contacts	Copper alloy, gold plated
Termination methods	Solder termination: up to 1.0 mm²
Fastening type	Ø25mm (1x)
Protection	IP 67 (maximum, dependant on cable gland used)
Cycle of mechanical operation	500
Temperature range	-40°C to +100°C, short-term up to +125°C

Arranging the data and power connector in the patch panel is possible supply power to 48 staves



If the data connector is rearranged to the lateral surface it is possible to increase the number of power connectors

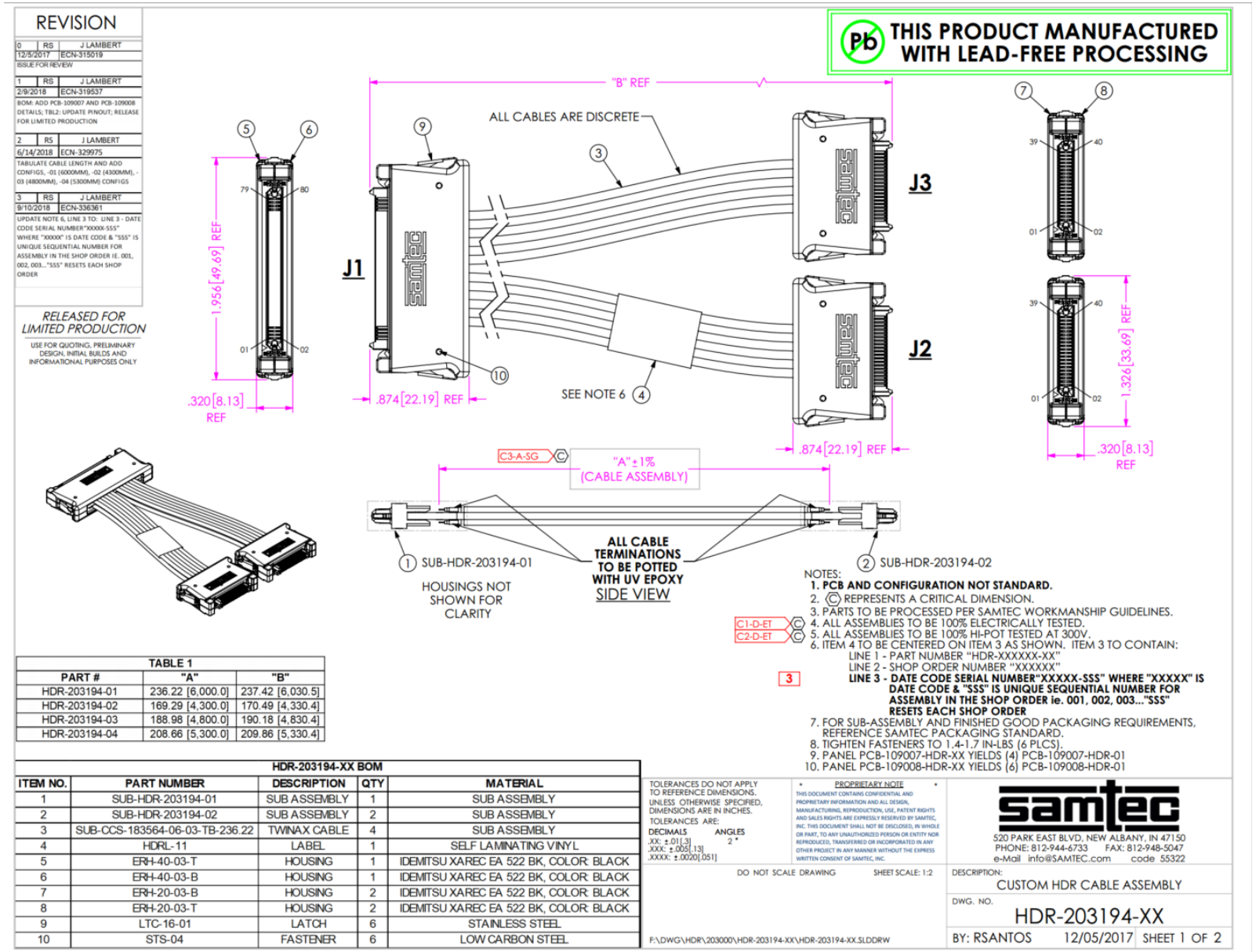
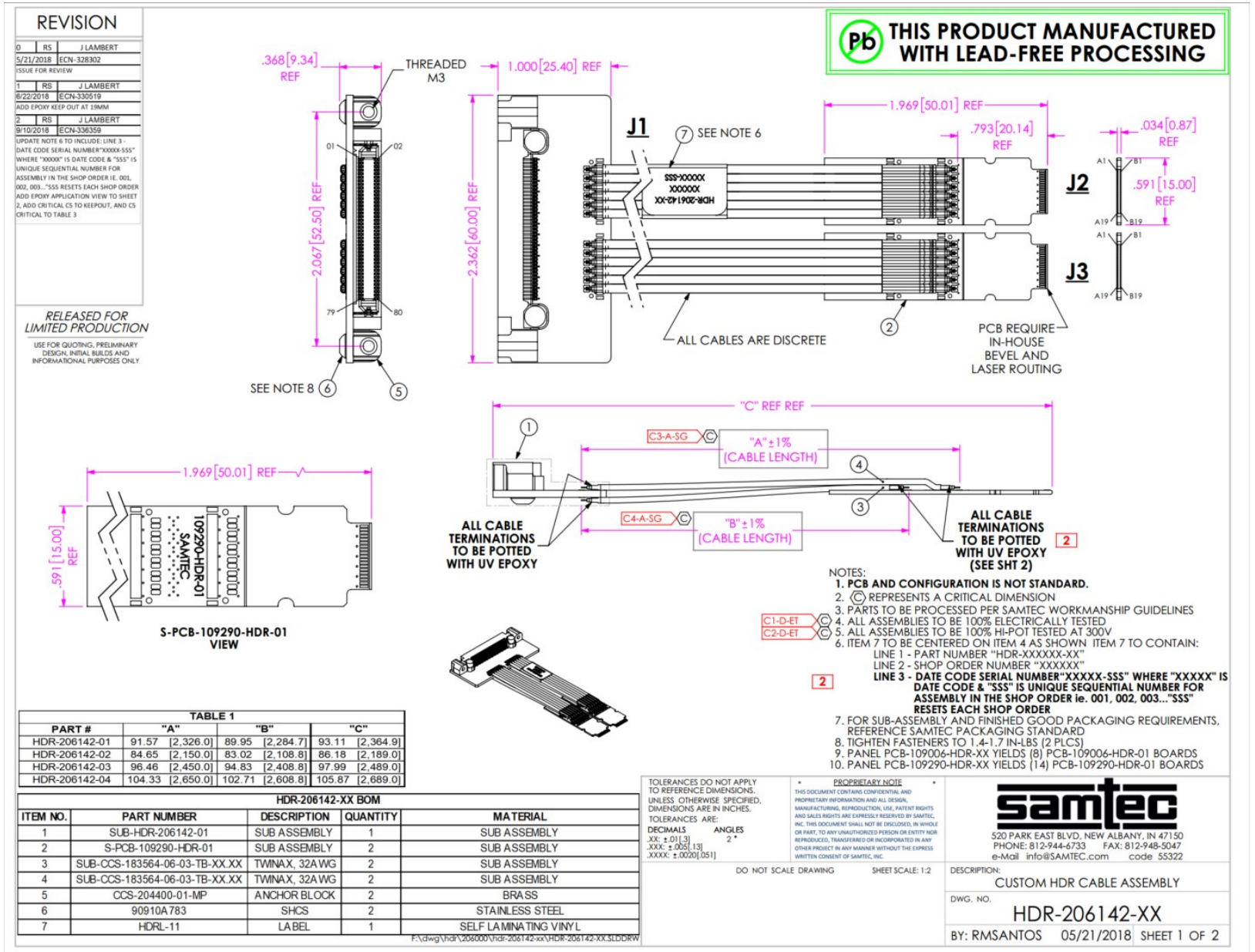


TABLE 1		
PART #	"A"	"B"
HDR-203194-01	236.22 [6,000.0]	237.42 [6,030.5]
HDR-203194-02	169.29 [4,300.0]	170.49 [4,330.4]
HDR-203194-03	188.98 [4,800.0]	190.18 [4,830.4]
HDR-203194-04	208.66 [5,300.0]	209.86 [5,330.4]

HDR-203194-XX BOM				
ITEM NO.	PART NUMBER	DESCRIPTION	QTY	MATERIAL
1	SUB-HDR-203194-01	SUB ASSEMBLY	1	SUB ASSEMBLY
2	SUB-HDR-203194-02	SUB ASSEMBLY	2	SUB ASSEMBLY
3	SUB-CCS-183564-06-03-TB-236.22	TWINAX CABLE	4	SUB ASSEMBLY
4	HDRL-11	LABEL	1	SELF LAMINATING VINYL
5	ERH-40-03-T	HOUSING	1	IDEMITSU XAREC EA 522 BK, COLOR: BLACK
6	ERH-40-03-B	HOUSING	1	IDEMITSU XAREC EA 522 BK, COLOR: BLACK
7	ERH-20-03-B	HOUSING	2	IDEMITSU XAREC EA 522 BK, COLOR: BLACK
8	ERH-20-03-T	HOUSING	2	IDEMITSU XAREC EA 522 BK, COLOR: BLACK
9	LTC-16-01	LATCH	6	STAINLESS STEEL
10	STS-04	FASTENER	6	LOW CARBON STEEL


REVISION
0 RS J LAMBERT 5/21/2018 ECN-328302 ISSUE FOR REVIEW
1 RS J LAMBERT 6/22/2018 ECN-330519 ADD EPOXY KEEP OUT AT 19MM
2 RS J LAMBERT 9/10/2018 ECN-336359 UPDATE NOTE 6 TO INCLUDE: LINE 3 - DATE CODE SERIAL NUMBER"XXXXX-SSS" WHERE "XXXXX" IS DATE CODE & "SSS" IS UNIQUE SEQUENTIAL NUMBER FOR ASSEMBLY IN THE SHOP ORDER IE. 001, 002, 003..."SSS RESETS EACH SHOP ORDER ADD EPOXY APPLICATION VIEW TO SHEET 2, ADD CRITICAL CS TO KEEPOUT, AND CS CRITICAL TO TABLE 3
RELEASED FOR LIMITED PRODUCTION
USE FOR QUOTING, PRELIMINARY DESIGN, INITIAL BUILDS AND INFORMATIONAL PURPOSES ONLY
THIS PRODUCT MANUFACTURED WITH LEAD-FREE PROCESSING
.368[9.34] REF
THREADED M3
1.000[25.40] REF
2.067[52.50] REF
2.362[60.00] REF
SEE NOTE 8
J1
SEE NOTE 6
1.969[50.01] REF
.793[20.14] REF
.034[0.87] REF
J2
.591[15.00] REF
J3
ALL CABLES ARE DISCRETE
PCB REQUIRE IN-HOUSE BEVEL AND LASER ROUTING
"C" REF REF
C3-A-SG
"A"±1% (CABLE LENGTH)
C4-A-SG
"B"±1% (CABLE LENGTH)
ALL CABLE TERMINATIONS TO BE POTTED WITH UV EPOXY
ALL CABLE TERMINATIONS TO BE POTTED WITH UV EPOXY (SEE SHT 2)
S-PCB-109290-HDR-01 VIEW
NOTES:
1. PCB AND CONFIGURATION IS NOT STANDARD.
2. Ⓒ REPRESENTS A CRITICAL DIMENSION
3. PARTS TO BE PROCESSED PER SAMTEC WORKMANSHIP GUIDELINES
4. ALL ASSEMBLIES TO BE 100% ELECTRICALLY TESTED
5. ALL ASSEMBLIES TO BE 100% HI-POT TESTED AT 300V
6. ITEM 7 TO BE CENTERED ON ITEM 4 AS SHOWN ITEM 7 TO CONTAIN:
LINE 1 - PART NUMBER "HDR-XXXXX-XX"
LINE 2 - SHOP ORDER NUMBER "XXXXX"
LINE 3 - DATE CODE SERIAL NUMBER"XXXXX-SSS" WHERE "XXXXX" IS DATE CODE & "SSS" IS UNIQUE SEQUENTIAL NUMBER FOR ASSEMBLY IN THE SHOP ORDER ie. 001, 002, 003..."SSS" RESETS EACH SHOP ORDER
7. FOR SUB-ASSEMBLY AND FINISHED GOOD PACKAGING REQUIREMENTS, REFERENCE SAMTEC PACKAGING STANDARD
8. TIGHTEN FASTENERS TO 1.4-1.7 IN-LBS (2 PLCS)
9. PANEL PCB-109006-HDR-XX YIELDS (8) PCB-109006-HDR-01 BOARDS
10. PANEL PCB-109290-HDR-XX YIELDS (14) PCB-109290-HDR-01 BOARDS
C1-D-ET
C2-D-ET
TABLE 1
PART # | "A" | "B" | "C"
HDR-206142-01 | 91.57 [2,326.0] | 89.95 [2,284.7] | 93.11 [2,364.9]
HDR-206142-02 | 84.65 [2,150.0] | 83.02 [2,108.8] | 86.18 [2,189.0]
HDR-206142-03 | 96.46 [2,450.0] | 94.83 [2,408.8] | 97.99 [2,489.0]
HDR-206142-04 | 104.33 [2,650.0] | 102.71 [2,608.8] | 105.87 [2,689.0]
HDR-206142-XX BOM
ITEM NO. | PART NUMBER | DESCRIPTION | QUANTITY | MATERIAL
1 | SUB-HDR-206142-01 | SUB ASSEMBLY | 1 | SUB ASSEMBLY
2 | S-PCB-109290-HDR-01 | SUB ASSEMBLY | 2 | SUB ASSEMBLY
3 | SUB-CCS-183564-06-03-TB-XX.XX | TWINAX, 32AWG | 2 | SUB ASSEMBLY
4 | SUB-CCS-183564-06-03-TB-XX.XX | TWINAX, 32AWG | 2 | SUB ASSEMBLY
5 | CCS-204400-01-MP | ANCHOR BLOCK | 2 | BRASS
6 | 90910A783 | SHCS | 2 | STAINLESS STEEL
7 | HDRL-11 | LABEL | 1 | SELF LAMINATING VINYL
F:\dwg\hdr\206000\hdr-206142-xx\HDR-206142-XX.SLDDRW
TOLERANCES DO NOT APPLY TO REFERENCE DIMENSIONS. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: DECIMALS .XX: ±.01[.3] .XXX: ±.005[.13] .XXXX: ±.0020[.051] ANGLES 2°
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DO NOT SCALE DRAWING SHEET SCALE: 1:2
samtec
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PHONE: 812-944-6733 FAX: 812-948-5047
e-Mail info@SAMTEC.com code 55322
DESCRIPTION: CUSTOM HDR CABLE ASSEMBLY
DWG. NO. HDR-206142-XX
BY: RMSANTOS 05/21/2018 SHEET 1 OF 2