Fermi National Accelerator Laboratory

SVX II Silicon Strip Detector Upgrade Project
Readout Electronics

VRB Subrack J3 Backplane
Rev. B

January 11, 2000

Jeff Andresen, Stefano Rapisarda, Ted Zmuda

Document # ESE-SVX-512629

Index

1. Introduction 2
2. Slot Assignment 3
   Table [1], Slot assignment 3
   Figure [2] Drivers, Receivers and Terminations 4
3. Backplane DIN Connector 5
   Figure [3] DIN Connector drawing 5
   Table [2] DIN connector part number 5
4. Backplane HERmet™ 2mm Hard Metric Connector 6
   Figure [4] Hard Metric connector drawing 6
   Table [3] Hard Metric connector part numbers 6
5. J3 Connector Pin Assignment for the VRB Fanout Board (VFO) and for the VFO slot (slot 14) on J3 backplane. 7
   Table [4] - TTL Bus Mapping for the J3 Backplane 7
   Table [5] –J3 Connector pin assignments for the VRB Fanout Module. 8
   Table [6] –J3 Connector pin assignments for slot 14 of the J3 backplane. 9
6. J3 Connector Pin Assignments for the VRB module and VRB slots of the Backplane. 10
   Table [7] – J3 Connector pin assignments for the VRB slots of the J3 backplane. 10
   Table [8] –J3 Connector pin assignments for the VRB (CDF-SVX). 11
   Table [9] –J3 Connector pin assignments for the VRB (CDF-TAXI) 12
7. J3 Connector Pin Assignments on the Silicon Readout Controller (SRC) and on SRC slots of the Backplane. 13
   Table [10] –J3 Connector pin assignments for the Silicon Readout Controller (SRC). 13
   Table [11] –J3 Connector pin assignments for SRC slots of the backplane. 14
8. J3 Backplane schematic 15
   8.1 Miscellaneous 16
   8.2 Slot 1 17
   8.3 Slot 2 18
   8.4 Slot 3 19
   8.5 Slot 4 20
   8.6 Slot 5 21
   8.7 Slot 6 22
   8.8 Slot 7 23
   8.9 Slot 8 24
   8.10 Slot 9 25
   8.11 Slot 10 26
   8.12 Slot 11 27
   8.13 Slot 12 28
   8.14 Slot 13 29
   8.15 Slot 14 30
   8.16 Slot 15 31
   8.17 Slot 16 32
   8.18 Slot 17 33
   8.19 Slot 18 34
   8.20 Slot 19 35
   8.21 Slot 20 36
   8.22 Slot 21 37

1. Introduction

This document describes the VRB Subrack J3 backplane production version (Rev.B, blue in color). The production backplane has different pin and slot assignments from the prototype version (Rev.A, green in color). Caution should be used and an understanding of the pinout and slot assignment is needed when using boards with either the production or the prototype versions of the J3 backplane.

2. Slot Assignment

The J3 backplane is used by the SRC to send commands to and receive status back from the VRB modules in the subrack. The J3 backplane has 21 slots, slots 1 to 4 have 3 row DIN connectors, slots 5 and 6 are assigned to SRC modules, the space of slots 7 and 21 are used for the TTL bus terminations, slots 8 to 13 and 15 to 20 are assigned to VRB Modules and slot 14 is assigned to the VRB Fanout Module.

Slot #	Connector and pinout
1	DIN Connector
2	DIN Connector
3	DIN Connector
4	DIN Connector
5	Hard metric, SRC compatible pinout (**Table[11]**)
6	Hard metric, SRC compatible pinout (**Table[11]**)
7	No connector, TTL BUS terminations
8	Hard metric, VRB slot (**Table[7]**)
9	Hard metric, VRB slot (**Table[7]**)
10	Hard metric, VRB slot (**Table[7]**)
11	Hard metric, VRB slot (**Table[7]**)
12	Hard metric, VRB slot (**Table[7]**)
13	Hard metric, VRB slot (**Table[7]**)
14	Hard metric, VRB Fanout (VFO) or VRB Controller (VRBC) slot (**Table[6]**)
15	Hard metric, VRB slot (**Table[7]**)
16	Hard metric, VRB slot (**Table[7]**)
17	Hard metric, VRB slot (**Table[7]**)
18	Hard metric, VRB slot (**Table[7]**)
19	Hard metric, VRB slot (**Table[7]**)
20	Hard metric, VRB slot (**Table[7]**)
21	No connector, TTL BUS terminations

Table [1], Slot assignment

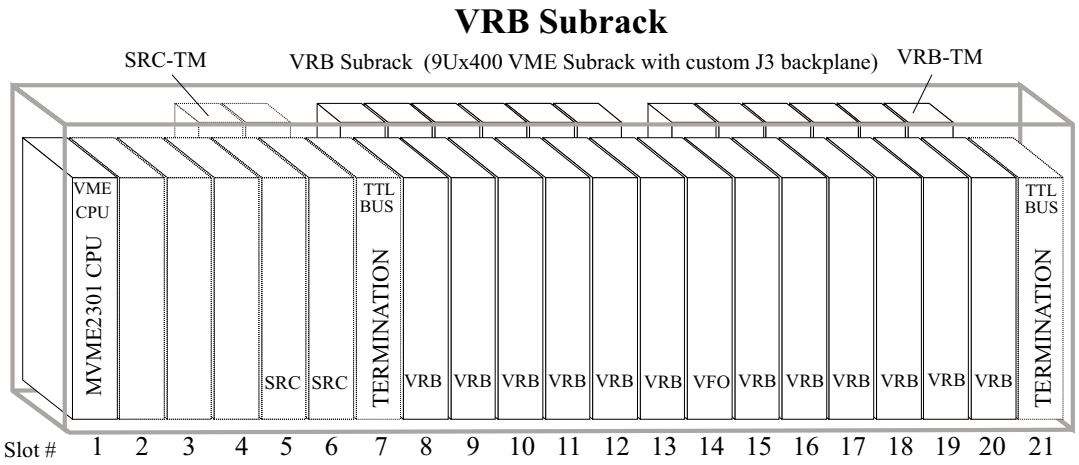


Figure [1] Slot assignment

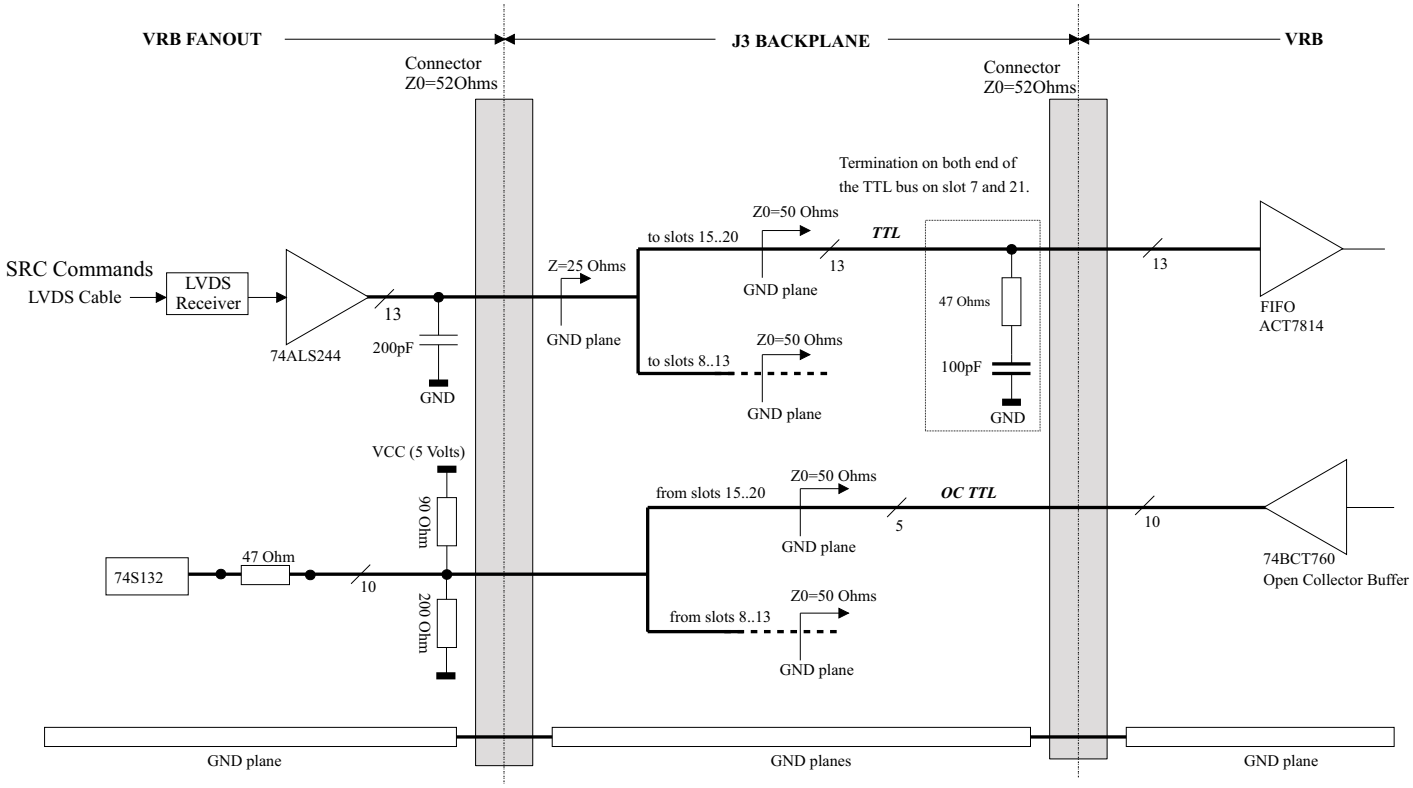


Figure [2] Drivers, Receivers and Terminations.

3. Backplane DIN Connector

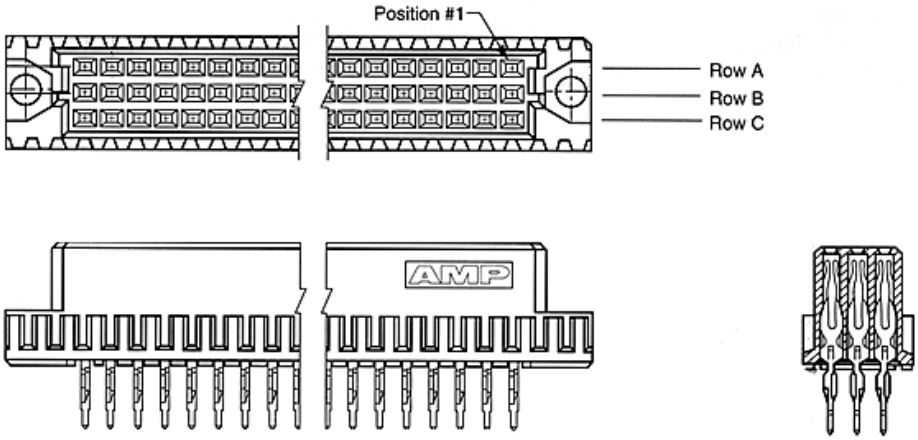


Figure [3] DIN Connector drawing

Part	Manufacturer and part #
Backplane DIN receptacle connector	AMP 215614-4

Table [2] DIN connector part number

Technical information on AMP products is available at the AMP web site:
http://www.amp.com/

4. Backplane HERmet™ 2mm Hard Metric Connector

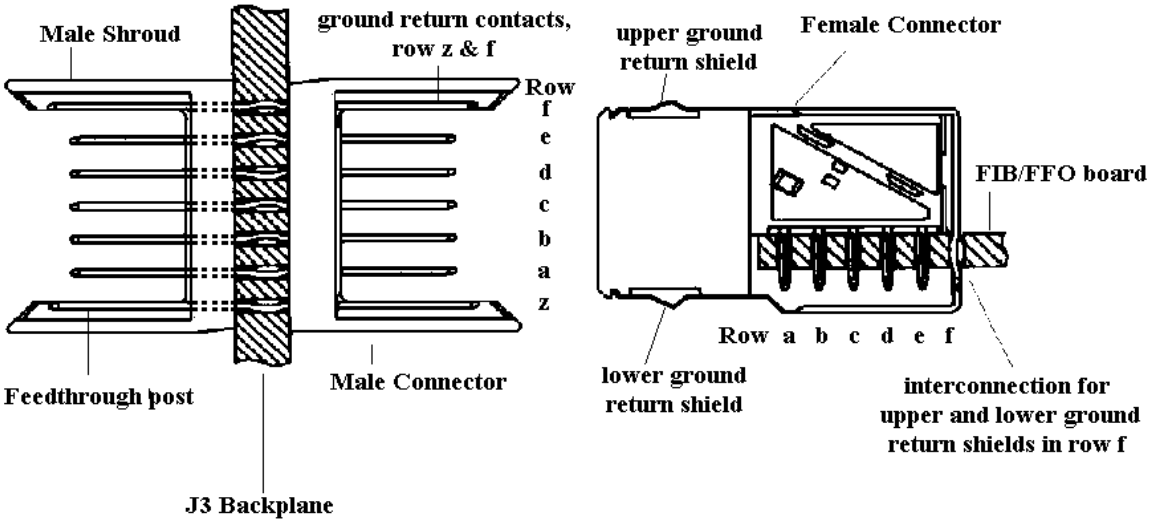


Figure [4] Hard Metric connector drawing

Part	Manufacturer and part #
25 pin backplane male connector	Erni 064522
22 pin backplane male connector	Erni 064690
25 pin backplane shroud	Erni 054797
22 pin backplane shroud	Erni 064692
25 pin card female connector (type B with upper shield without peg)	Erni 064179
22 pin card female connector (type B with upper shield)	Erni 064785
25 pin lower shield for card female connector (lower shield for type B)	Erni 044452
22 pin lower shield for card female connector (lower shield for type B)	Erni 064783

Table [3] Hard Metric connector part numbers

Technical information on Erni products is available at the ERNI INTERCONNECT web site:
http://Connect.ERNI.com/

5. J3 Connector Pin Assignment for the VRB Fanout Board (VFO) and for the VFO slot (slot 14) on J3 backplane.

The pinout for the J3 connector on the VFO and on slot 14 of the backplane are shown on the following pages. The Fanout makes an electrical connection to pins in row "z" only if the bottom shield of the connector is installed.

J3 Pin	Signal Name	Signal Type	Direction VFO-VRB
C1-C8	VRB_MESSAGE [0-7]	TTL	⇒
C9-C12	VRB_COMMAND [0-3]	TTL	⇒
C13	VRB STROBE	TTL	⇒
C14	READ_BUSY*	Open Collector (♣)	⇐
C15	SCAN_BUSY*	Open Collector (♣)	⇐
C16	SYNC_ERROR*	Open Collector (♣)	⇐
C17	FRAME_ERROR*	Open Collector (♣)	⇐
C18	IDENTIFIER_ERROR*	Open Collector (♣)	⇐
C19	FORMAT_ERROR*	Open Collector (♣)	⇐
C20	CONTROLLER_ERROR*	Open Collector (♣)	⇐
C21	VRB_ERROR*	Open Collector (♣)	⇐
C22-C23	STATUS[8-9]	Open Collector (♣)	⇐
C24-C25	RESERVED	RESERVED	

Table [4] - TTL Bus Mapping for the J3 Backplane

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND (•)	N.C.	GND	MESSAGE[0]	GND	N.C.	GND
2	GND (•)	N.C.	N.C.	MESSAGE[1]	N.C.	N.C.	GND
3	GND (•)	GND	N.C.	MESSAGE[2]	N.C.	GND	GND
4	GND (•)	N.C.	N.C.	MESSAGE[3]	N.C.	N.C.	GND
5	GND (•)	N.C.	GND	MESSAGE[4]	GND	N.C.	GND
6	GND (•)	N.C.	N.C.	MESSAGE[5]	N.C.	N.C.	GND
7	GND (•)	GND	N.C.	MESSAGE[6]	N.C.	GND	GND
8	GND (•)	N.C.	N.C.	MESSAGE[7]	N.C.	N.C.	GND
9	GND (•)	N.C.	GND	COMMAND[0]	GND	N.C.	GND
10	GND (•)	N.C.	N.C.	COMMAND[1]	N.C.	N.C.	GND
11	GND (•)	GND	N.C.	COMMAND[2]	N.C.	GND	GND
12	GND (•)	N.C.	N.C.	COMMAND[3]	N.C.	N.C.	GND
13	GND (•)	N.C.	GND	STROBE	GND	N.C.	GND
14	GND (•)	N.C.	N.C.	STATUS[0]	N.C.	N.C.	GND
15	GND (•)	GND	N.C.	STATUS[1]	N.C.	GND	GND
16	GND (•)	N.C.	N.C.	STATUS[2]	N.C.	N.C.	GND
17	GND (•)	N.C.	GND	STATUS[3]	GND	N.C.	GND
18	GND (•)	N.C.	N.C.	STATUS[4]	N.C.	N.C.	GND
19	GND (•)	GND	N.C.	STATUS[5]	N.C.	GND	GND
20	GND (•)	N.C.	GND	STATUS[6]	GND	N.C.	GND
21	GND (•)	N.C.	N.C.	STATUS[7]	N.C.	N.C.	GND
22	GND (•)	GND	N.C.	STATUS[8]	N.C.	GND	GND
23	GND (•)	N.C.	GND	STATUS[9]	GND	N.C.	GND
24	GND (•)	N.C.	N.C.	RESERVED	N.C.	N.C.	GND
25	GND (•)	GND	N.C.	RESERVED	N.C.	GND	GND
26	GND (•)	N.C.	GND	GND	GND	N.C.	GND
27	GND (•)	N.C.	N.C.	GND	N.C.	N.C.	GND
28	GND (•)	GND	N.C.	GND	N.C.	GND	GND
29	GND (•)	N.C.	GND	GND	GND	N.C.	GND
30	GND (•)	N.C.	N.C.	GND	N.C.	N.C.	GND
31	GND (•)	GND	N.C.	GND	N.C.	GND	GND
32	GND (•)	N.C.	GND	+5.0 V	GND	N.C.	GND
33	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
34	GND (•)	GND	N.C.	N.C.	N.C.	GND	GND
35	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
36	GND (•)	N.C.	GND	N.C.	GND	N.C.	GND
37	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
38	GND (•)	GND	N.C.	N.C.	N.C.	GND	GND
39	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
40	GND (•)	N.C.	GND	N.C.	GND	N.C.	GND
41	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
42	GND (•)	GND	N.C.	N.C.	N.C.	GND	GND
43	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
44	GND (•)	N.C.	GND	N.C.	GND	N.C.	GND
45	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND
46	GND (•)	GND	N.C.	N.C.	N.C.	GND	GND
47	GND (•)	N.C.	N.C.	N.C.	N.C.	N.C.	GND

(•) The Fanout makes connection to pins in row "z" only if the bottom shield of the connector is installed.
N.C. - No connection on the VFO.

Table [5] –J3 Connector pin assignments for the VRB Fanout Module.

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND (•)	(⊗)	GND	BUS 1	GND	(⊗)	GND
2	GND (•)	(⊗)	(⊗)	BUS 2	(⊗)	(⊗)	GND
3	GND (•)	GND	(⊗)	BUS 3	(⊗)	GND	GND
4	GND (•)	(⊗)	(⊗)	BUS 4	(⊗)	(⊗)	GND
5	GND (•)	(⊗)	GND	BUS 5	GND	(⊗)	GND
6	GND (•)	(⊗)	(⊗)	BUS 6	(⊗)	(⊗)	GND
7	GND (•)	GND	(⊗)	BUS 7	(⊗)	GND	GND
8	GND (•)	(⊗)	(⊗)	BUS 8	(⊗)	(⊗)	GND
9	GND (•)	(⊗)	GND	BUS 9	GND	(⊗)	GND
10	GND (•)	(⊗)	(⊗)	BUS 10	(⊗)	(⊗)	GND
11	GND (•)	GND	(⊗)	BUS 11	(⊗)	GND	GND
12	GND (•)	(⊗)	(⊗)	BUS 12	(⊗)	(⊗)	GND
13	GND (•)	(⊗)	GND	BUS 13	GND	(⊗)	GND
14	GND (•)	(⊗)	(⊗)	BUS 14	(⊗)	(⊗)	GND
15	GND (•)	GND	(⊗)	BUS 15	(⊗)	GND	GND
16	GND (•)	(⊗)	(⊗)	BUS 16	(⊗)	(⊗)	GND
17	GND (•)	(⊗)	GND	BUS 17	GND	(⊗)	GND
18	GND (•)	(⊗)	(⊗)	BUS 18	(⊗)	(⊗)	GND
19	GND (•)	GND	(⊗)	BUS 19	(⊗)	GND	GND
20	GND (•)	(⊗)	GND	BUS 20	GND	(⊗)	GND
21	GND (•)	(⊗)	(⊗)	BUS 21	(⊗)	(⊗)	GND
22	GND (•)	GND	(⊗)	BUS 22	(⊗)	GND	GND
23	GND (•)	(⊗)	GND	BUS 23	GND	(⊗)	GND
24	GND (•)	(⊗)	(⊗)	BUS 24	(⊗)	(⊗)	GND
25	GND (•)	GND	(⊗)	BUS 25	(⊗)	GND	GND
26	GND (•)	(⊗)	GND	GND	GND	(⊗)	GND
27	GND (•)	(⊗)	(⊗)	GND	(⊗)	(⊗)	GND
28	GND (•)	GND	(⊗)	GND	(⊗)	GND	GND
29	GND (•)	(⊗)	GND	GND	GND	(⊗)	GND
30	GND (•)	(⊗)	(⊗)	GND	(⊗)	(⊗)	GND
31	GND (•)	GND	(⊗)	GND	(⊗)	GND	GND
32	GND (•)	(⊗)	GND	+5.0 V	GND	(⊗)	GND
33	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
34	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
35	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
36	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
37	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
38	GND (•)	GND	(⊗)	GND	(⊗)	GND	GND
39	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
40	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
41	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
42	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
43	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
44	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
45	GND (•)	(⊗)	(⊗)	TO SLOT4-C08	(⊗)	(⊗)	GND
46	GND (•)	GND	(⊗)	TO SLOT4-C09	(⊗)	GND	GND
47	GND (•)	(⊗)	(⊗)	TO SLOT4-C10	(⊗)	(⊗)	GND

(•) The Fanout makes connection to pins in row "z" only if the bottom shield of the connector is installed.
(⊗) Feed through pin.

Table [6] –J3 Connector pin assignments for slot 14 of the J3 backplane.

6. J3 Connector Pin Assignments for the VRB module and VRB slots of the Backplane.

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND (•)	(⊗)	GND	BUS 1	GND	(⊗)	GND
2	GND (•)	(⊗)	(⊗)	BUS 2	(⊗)	(⊗)	GND
3	GND (•)	GND	(⊗)	BUS 3	(⊗)	GND	GND
4	GND (•)	(⊗)	(⊗)	BUS 4	(⊗)	(⊗)	GND
5	GND (•)	(⊗)	GND	BUS 5	GND	(⊗)	GND
6	GND (•)	(⊗)	(⊗)	BUS 6	(⊗)	(⊗)	GND
7	GND (•)	GND	(⊗)	BUS 7	(⊗)	GND	GND
8	GND (•)	(⊗)	(⊗)	BUS 8	(⊗)	(⊗)	GND
9	GND (•)	(⊗)	GND	BUS 9	GND	(⊗)	GND
10	GND (•)	(⊗)	(⊗)	BUS 10	(⊗)	(⊗)	GND
11	GND (•)	GND	(⊗)	BUS 11	(⊗)	GND	GND
12	GND (•)	(⊗)	(⊗)	BUS 12	(⊗)	(⊗)	GND
13	GND (•)	(⊗)	GND	BUS 13	GND	(⊗)	GND
14	GND (•)	(⊗)	(⊗)	BUS 14	(⊗)	(⊗)	GND
15	GND (•)	GND	(⊗)	BUS 15	(⊗)	GND	GND
16	GND (•)	(⊗)	(⊗)	BUS 16	(⊗)	(⊗)	GND
17	GND (•)	(⊗)	GND	BUS 17	GND	(⊗)	GND
18	GND (•)	(⊗)	(⊗)	BUS 18	(⊗)	(⊗)	GND
19	GND (•)	GND	(⊗)	BUS 19	(⊗)	GND	GND
20	GND (•)	(⊗)	GND	BUS 20	GND	(⊗)	GND
21	GND (•)	(⊗)	(⊗)	BUS 21	(⊗)	(⊗)	GND
22	GND (•)	GND	(⊗)	BUS 22	(⊗)	GND	GND
23	GND (•)	(⊗)	GND	BUS 23	GND	(⊗)	GND
24	GND (•)	(⊗)	(⊗)	BUS 24	(⊗)	(⊗)	GND
25	GND (•)	GND	(⊗)	BUS 25	(⊗)	GND	GND
26	GND (•)	(⊗)	GND	GND	GND	(⊗)	GND
27	GND (•)	(⊗)	(⊗)	GND	(⊗)	(⊗)	GND
28	GND (•)	GND	(⊗)	GND	(⊗)	GND	GND
29	GND (•)	(⊗)	GND	GND	GND	(⊗)	GND
30	GND (•)	(⊗)	(⊗)	GND	(⊗)	(⊗)	GND
31	GND (•)	GND	(⊗)	GND	(⊗)	GND	GND
32	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
33	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
34	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
35	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
36	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
37	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
38	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
39	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
40	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
41	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
42	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
43	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
44	GND (•)	(⊗)	GND	(⊗)	GND	(⊗)	GND
45	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND
46	GND (•)	GND	(⊗)	(⊗)	(⊗)	GND	GND
47	GND (•)	(⊗)	(⊗)	(⊗)	(⊗)	(⊗)	GND

(•) The VRB makes connection to pins in row "z" only if the bottom shield of the connector is installed.
(⊗) Feed through pin.

Table [7] – J3 Connector pin assignments for the VRB slots of the J3 backplane.

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND	L0_D0	GND	MESSAGE[0]	GND	L2_D0	GND
2	GND	L0_D1	L0_D2	MESSAGE[1]	L2_D2	L2_D1	GND
3	GND	GND	L0_D3	MESSAGE[2]	L2_D3	GND	GND
4	GND	L0_D5	L0_D4	MESSAGE[3]	L2_D4	L2_D5	GND
5	GND	L0_D6	GND	MESSAGE[4]	GND	L2_D6	GND
6	GND	L0_D7	L0_D8	MESSAGE[5]	L2_D8	L2_D7	GND
7	GND	GND	L0_D9	MESSAGE[6]	L2_D9	GND	GND
8	GND	L0_D11	L0_D10	MESSAGE[7]	L2_D10	L2_D11	GND
9	GND	L0_D12	GND	COMMAND[0]	GND	L2_D12	GND
10	GND	L0_D13	L0_D14	COMMAND[1]	L2_D14	L2_D13	GND
11	GND	GND	L0_D15	COMMAND[2]	L2_D15	GND	GND
12	GND	L0_D16	L0_D16	COMMAND[3]	L2_D16	L2_D16	GND
13	GND	L0_D17	GND	STROBE	GND	L2_D17	GND
14	GND	L0_D17	L0_D18	STATUS[0]	L2_D18	L2_D17	GND
15	GND	GND	L0_D18	STATUS[1]	L2_D18	GND	GND
16	GND	L0_D19	L0_D19	STATUS[2]	L2_D19	L2_D19	GND
17	GND	L0_CAV*	GND	STATUS[3]	GND	L2_CAV*	GND
18	GND	L0_DAV*	L0_LNKRDY*	STATUS[4]	L2_LNKRDY*	L2_DAV*	GND
19	GND	GND	L0_LNKRDY*	STATUS[5]	L2_LNKRDY*	GND	GND
20	GND	L0_STRBOUT	GND	STATUS[6]	GND	L2_STRBOUT	GND
21	GND	L0_STRBOUT*	L0_ERROR	STATUS[7]	L2_ERROR	L2_STRBOUT*	GND
22	GND	GND	L0_ERROR	STATUS[8]	L2_ERROR	GND	GND
23	GND	RESERVED	GND	STATUS[9]	GND	RESERVED	GND
24	GND	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	GND
25	GND	GND	RESERVED	RESERVED	RESERVED	GND	GND
26	GND	L1_CAV*	GND	GND	GND	L3_CAV*	GND
27	GND	L1_DAV*	L1_LNKRDY*	RESERVED	L3_LNKRDY*	L3_DAV*	GND
28	GND	GND	L1_LNKRDY*	RESERVED	L3_LNKRDY*	GND	GND
29	GND	L1_STRBOUT	GND	GND	GND	L3_STRBOUT	GND
30	GND	L1_STRBOUT*	L1_ERROR	RESERVED	L3_ERROR	L3_STRBOUT*	GND
31	GND	GND	L1_ERROR	RESERVED	L3_ERROR	GND	GND
32	GND	L1_D0	GND	No Connect	GND	L3_D0	GND
33	GND	L1_D1	L1_D2	No Connect	L3_D2	L3_D1	GND
34	GND	GND	L1_D3	No Connect	L3_D3	GND	GND
35	GND	L1_D5	L1_D4	No Connect	L3_D4	L3_D5	GND
36	GND	L1_D6	GND	RESERVED	GND	L3_D6	GND
37	GND	L1_D7	L1_D8	RESERVED	L3_D8	L3_D7	GND
38	GND	GND	L1_D9	GND	L3_D9	GND	GND
39	GND	L1_D11	L1_D10	RESERVED	L3_D10	L3_D11	GND
40	GND	L1_D12	GND	RESERVED	GND	L3_D12	GND
41	GND	L1_D13	L1_D14	No Connect	L3_D14	L3_D13	GND
42	GND	GND	L1_D15	No Connect	L3_D15	GND	GND
43	GND	L1_D16	L1_D16	No Connect	L3_D16	L3_D16	GND
44	GND	L1_D17	GND	No Connect	GND	L3_D17	GND
45	GND	L1_D17	L1_D18	SERIAL	L3_D18	L3_D17	GND
46	GND	GND	L1_D18	RESET*	L3_D18	GND	GND
47	GND	L1_D19	L1_D19	MODID	L3_D19	L3_D19	GND

Table [8] –J3 Connector pin assignments for the VRB (CDF-SVX).

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND	L0_D0	GND	BUS 1	GND	L4_D0	GND
2	GND	L0_D1	L0_D2	BUS 2	L4_D2	L4_D1	GND
3	GND	GND	L0_D3	BUS 3	L4_D3	GND	GND
4	GND	L0_D5	L0_D4	BUS 4	L4_D4	L4_D5	GND
5	GND	L0_D6	GND	BUS 5	GND	L4_D6	GND
6	GND	L0_D7	L1_D0	BUS 6	L5_D0	L4_D7	GND
7	GND	GND	L1_D1	BUS 7	L5_D1	GND	GND
8	GND	L1_D3	L1_D2	BUS 8	L5_D2	L5_D3	GND
9	GND	L1_D4	GND	BUS 9	GND	L5_D4	GND
10	GND	L1_D5	L1_D6	BUS 10	L5_D6	L5_D5	GND
11	GND	GND	L1_D7	BUS 11	L5_D7	GND	GND
12	GND	L0_D8	L8_D0	BUS 12	L9_D0	L4_D8	GND
13	GND	L0_D9	GND	BUS 13	GND	L4_D9	GND
14	GND	L8_D1	L1_D8	BUS 14	L5_D8	L9_D1	GND
15	GND	GND	L8_D2	BUS 15	L9_D2	GND	GND
16	GND	L1_D9	L8_D3	BUS 16	L9_D3	L5_D9	GND
17	GND	L0_DSTRB	GND	BUS 17	GND	L4_DSTRB	GND
18	GND	L1_DSTRB	L0_BUSY	BUS 18	L4_BUSY	L5_DSTRB	GND
19	GND	GND	L1_BUSY	BUS 19	L5_BUSY	GND	GND
20	GND	L0_CLOCK	GND	BUS 20	GND	L4_CLOCK	GND
21	GND	L1_CLOCK	L0_VLTN	BUS 21	L4_VLTN	L5_CLOCK	GND
22	GND	GND	L1_VLTN	BUS 22	L5_VLTN	GND	GND
23	GND	L8_CLOCK	GND	BUS 23	GND	L9_CLOCK	GND
24	GND	L8_DSTRB	L8_VLTN	RESERVED	L9_VLTN	L9_DSTRB	GND
25	GND	GND	L8_BUSY	RESERVED	L9_BUSY	GND	GND
26	GND	L2_DSTRB	GND	GND	GND	L6_DSTRB	GND
27	GND	L3_DSTRB	L2_BUSY	RESERVED	L6_BUSY	L7_DSTRB	GND
28	GND	GND	L3_BUSY	RESERVED	L7_BUSY	GND	GND
29	GND	L2_CLOCK	GND	GND	GND	L6_CLOCK	GND
30	GND	L3_CLOCK	L2_VLTN	RESERVED	L6_VLTN	L7_CLOCK	GND
31	GND	GND	L3_VLTN	RESERVED	L7_VLTN	GND	GND
32	GND	L2_D0	GND	No Connect	GND	L6_D0	GND
33	GND	L2_D1	L2_D2	No Connect	L6_D2	L6_D1	GND
34	GND	GND	L2_D3	No Connect	L6_D3	GND	GND
35	GND	L2_D5	L2_D4	No Connect	L6_D4	L6_D5	GND
36	GND	L2_D6	GND	L8_D8	GND	L6_D6	GND
37	GND	L2_D7	L3_D0	L8_D9	L7_D0	L6_D7	GND
38	GND	GND	L3_D1	GND	L7_D1	GND	GND
39	GND	L3_D3	L3_D2	L9_D8	L7_D2	L7_D3	GND
40	GND	L3_D4	GND	L9_D9	GND	L7_D4	GND
41	GND	L3_D5	L3_D6	No Connect	L7_D6	L7_D5	GND
42	GND	GND	L3_D7	No Connect	L7_D7	GND	GND
43	GND	L8_D4	L2_D8	No Connect	L6_D8	L9_D4	GND
44	GND	L2_D9	GND	No Connect	GND	L6_D9	GND
45	GND	L8_D5	L3_D8	RESERVED	L7_D8	L9_D5	GND
46	GND	GND	L8_D6	RESET*	L9_D6	GND	GND
47	GND	L3_D9	L8_D7	MODID	L9_D7	L7_D9	GND

Table [9] –J3 Connector pin assignments for the VRB (CDF-TAXI)

7. J3 Connector Pin Assignments on the Silicon Readout Controller (SRC) and on SRC slots of the Backplane.

Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND (•)	GND (♦)	N.C.	N.C.	N.C.	N.C.	GND
2	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
3	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
4	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
5	GND (•)	GND (♦)	N.C.	N.C.	N.C.	N.C.	GND
6	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
7	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
8	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
9	GND (•)	GND (♦)	N.C.	N.C.	N.C.	N.C.	GND
10	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
11	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
12	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
13	GND (•)	GND (♦)	N.C.	N.C.	N.C.	N.C.	GND
14	GND (•)	RF_DEL_CLK	N.C.	N.C.	N.C.	GND (♦)	GND
15	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
16	GND (•)	GL_CLK	N.C.	N.C.	N.C.	GND (♦)	GND
17	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
18	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
19	GND (•)	/RESET	N.C.	N.C.	N.C.	GND (♦)	GND
20	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
21	GND (•)	FF	N.C.	N.C.	N.C.	GND (♦)	GND
22	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
23	GND (•)	GND (♦)	N.C.	N.C.	N.C.	GND (♦)	GND
24	GND (•)	N.C.	N.C.	N.C.	N.C.	GND (♦)	GND
25	GND (•)	GND (♦)	GND (♦)	N.C.	GND (♦)	GND (♦)	GND
26	GND (•)	N.C.	READY	GND (♦)	GND (♦)	/CS0	GND
27	GND (•)	S1	SCLK	GND (♦)	/CS2	/CS1	GND
28	GND (•)	N.C.	S0	GND (♦)	/CS3	GND (♦)	GND
29	GND (•)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	/CAV	GND
30	GND (•)	N.C.	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND
31	GND (•)	GND (♦)	VRB_ERR0	GND (♦)	ED	GND (♦)	GND
32	GND (•)	N.C.	VRB_ERR1	GND (♦)	/DAV	LOCK	GND
33	GND (•)	GND (♦)	VRB_ERR2	GND (♦)	GND (♦)	GND (♦)	GND
34	GND (•)	N.C.	VRB_ERR3	GND (♦)	GND (♦)	GND (♦)	GND
35	GND (•)	GLD18	GND (♦)	GND (♦)	GND (♦)	GLD19	GND
36	GND (•)	N.C.	GLD16	GND (♦)	GLD17	GND (♦)	GND
37	GND (•)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND
38	GND (•)	N.C.	GLD14	GND (♦)	GLD15	GND (♦)	GND
39	GND (•)	GLD12	GND (♦)	GND (♦)	GND (♦)	GLD13	GND
40	GND (•)	N.C.	GLD10	GND (♦)	GLD11	GND (♦)	GND
41	GND (•)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND
42	GND (•)	N.C.	GLD8	GND (♦)	GLD9	GND (♦)	GND
43	GND (•)	GLD6	GND (♦)	GND (♦)	GND (♦)	GLD7	GND
44	GND (•)	N.C.	GLD4	GND (♦)	GLD5	GND (♦)	GND
45	GND (•)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND (♦)	GND
46	GND (•)	N.C.	GLD2	GND (♦)	GLD3	GND (♦)	GND
47	GND (•)	GLD0	GND (♦)	GND (♦)	GND (♦)	GLD1	GND

(•) The SRC makes connection to pins in row "z" only if the bottom shield of the connector is installed.
(♦) The pin is connected to ground on the SRC-TM and the SRC boards.

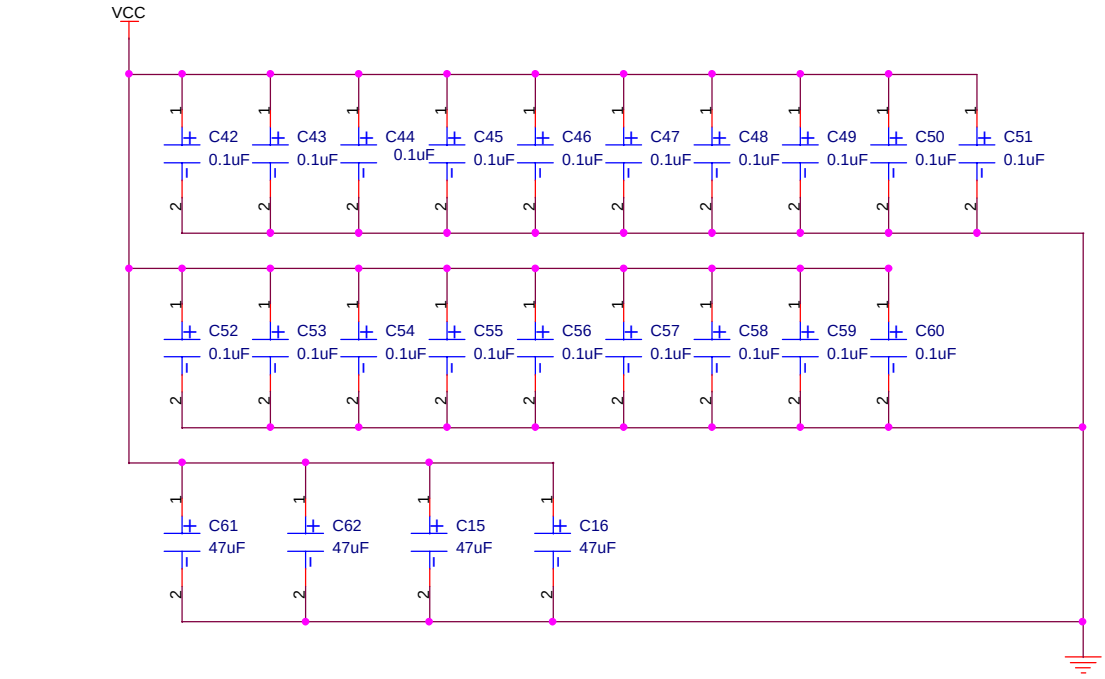
Table [10] –J3 Connector pin assignments for the Silicon Readout Controller (SRC).

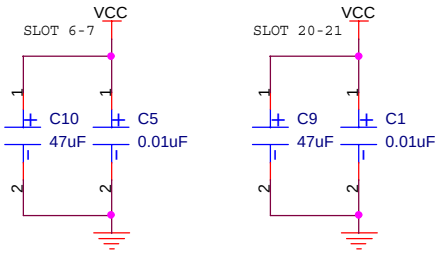
Pin #	Row 'z'	Row 'a'	Row 'b'	Row 'c'	Row 'd'	Row 'e'	Row 'f'
1	GND	GND	N.C.	N.C.	N.C.	GND	GND
2	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
3	GND	GND	N.C.	N.C.	N.C.	GND	GND
4	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
5	GND	GND	N.C.	N.C.	N.C.	GND	GND
6	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
7	GND	GND	N.C.	N.C.	N.C.	GND	GND
8	GND	GND	N.C.	N.C.	N.C.	GND	GND
9	GND	GND	N.C.	N.C.	N.C.	GND	GND
10	GND	GND	N.C.	N.C.	N.C.	GND	GND
11	GND	GND	N.C.	N.C.	N.C.	GND	GND
12	GND	GND	N.C.	N.C.	N.C.	GND	GND
13	GND	GND	N.C.	N.C.	N.C.	GND	GND
14	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
15	GND	GND	N.C.	N.C.	N.C.	GND	GND
16	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
17	GND	GND	N.C.	N.C.	N.C.	GND	GND
18	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
19	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
20	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
21	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
22	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
23	GND	GND	N.C.	N.C.	N.C.	GND	GND
24	GND	N.C.	N.C.	N.C.	N.C.	GND	GND
25	GND	GND	GND	N.C.	GND	GND	GND
26	GND	N.C.	N.C.	GND	GND	N.C.	GND
27	GND	N.C.	N.C.	GND	N.C.	N.C.	GND
28	GND	N.C.	N.C.	GND	N.C.	GND	GND
29	GND	GND	GND	GND	GND	N.C.	GND
30	GND	N.C.	GND	GND	GND	GND	GND
31	GND	GND	N.C.	GND	N.C.	GND	GND
32	GND	N.C.	N.C.	N.C.	N.C.	N.C.	GND
33	GND	GND	N.C.	GND	GND	GND	GND
34	GND	N.C.	N.C.	GND	GND	GND	GND
35	GND	N.C.	GND	GND	GND	N.C.	GND
36	GND	N.C.	N.C.	GND	N.C.	GND	GND
37	GND	GND	GND	GND	GND	GND	GND
38	GND	N.C.	N.C.	GND	N.C.	GND	GND
39	GND	N.C.	GND	GND	GND	N.C.	GND
40	GND	N.C.	N.C.	GND	N.C.	GND	GND
41	GND	GND	GND	GND	GND	GND	GND
42	GND	N.C.	N.C.	GND	N.C.	GND	GND
43	GND	N.C.	GND	GND	GND	N.C.	GND
44	GND	N.C.	N.C.	GND	N.C.	GND	GND
45	GND	GND	GND	GND	GND	GND	GND
46	GND	N.C.	N.C.	GND	N.C.	GND	GND
47	GND	N.C.	GND	GND	GND	N.C.	GND

Table [11] –J3 Connector pin assignments for SRC slots of the backplane.

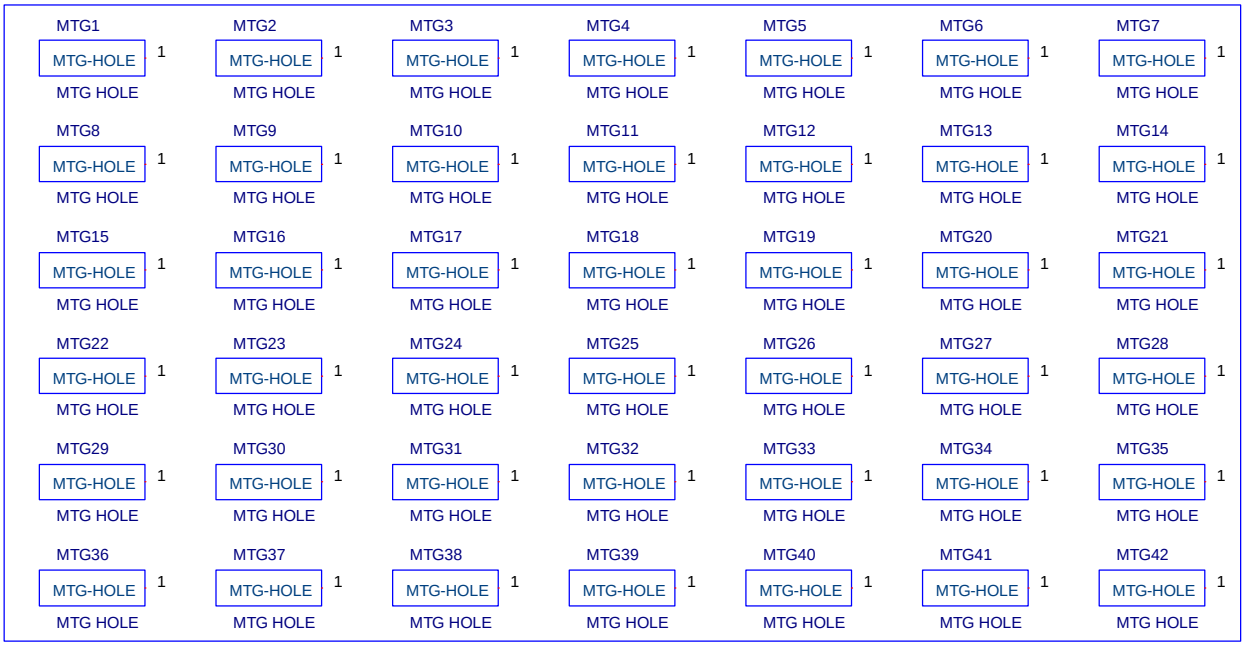
8. J3 Backplane schematic

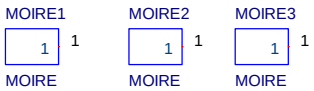
The following pages contain the OrCAD schematic of the VRB subrack production version of the J3 backplane. This schematic has been edited in order to fit the document page size.



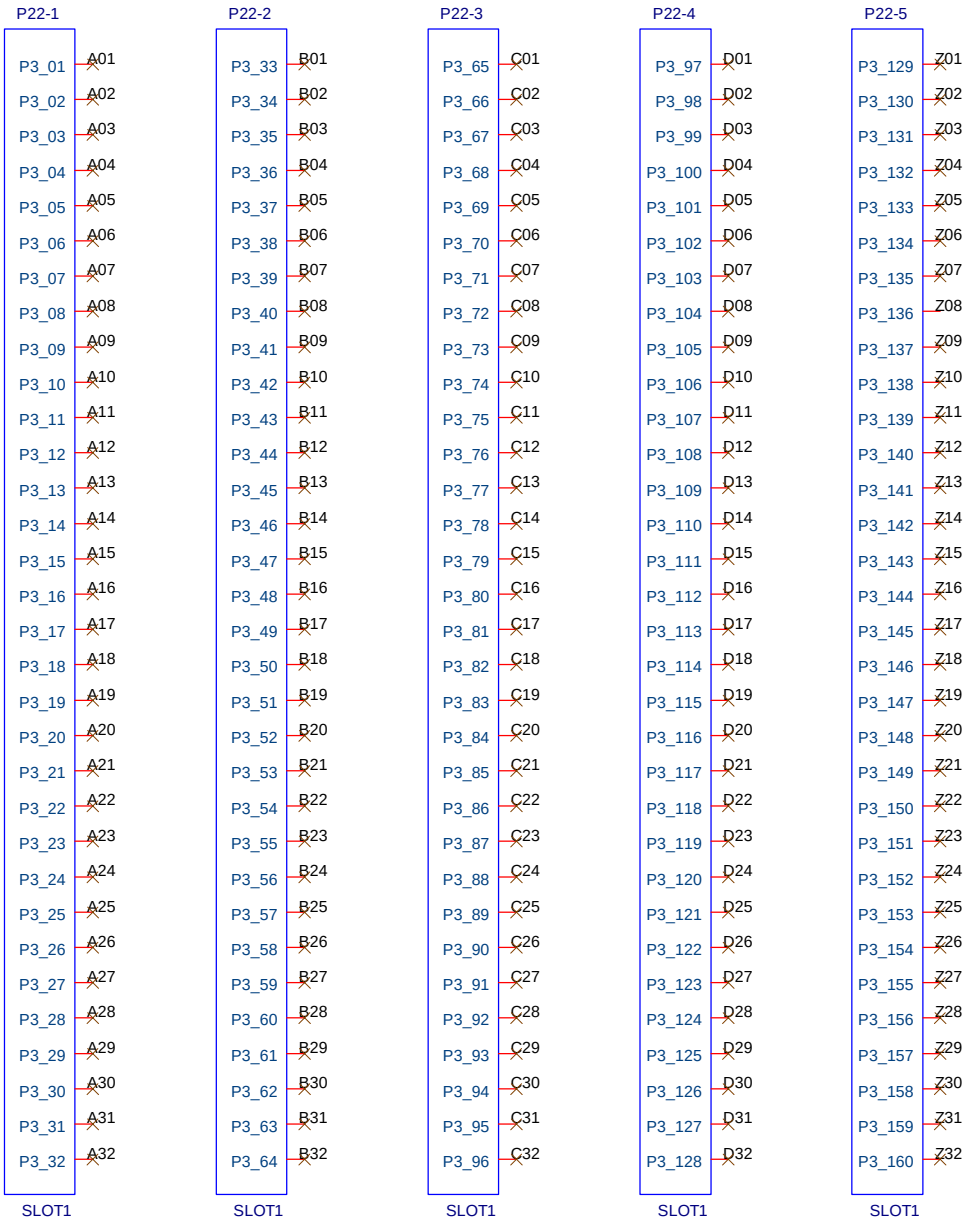


Mounting Holes (42)



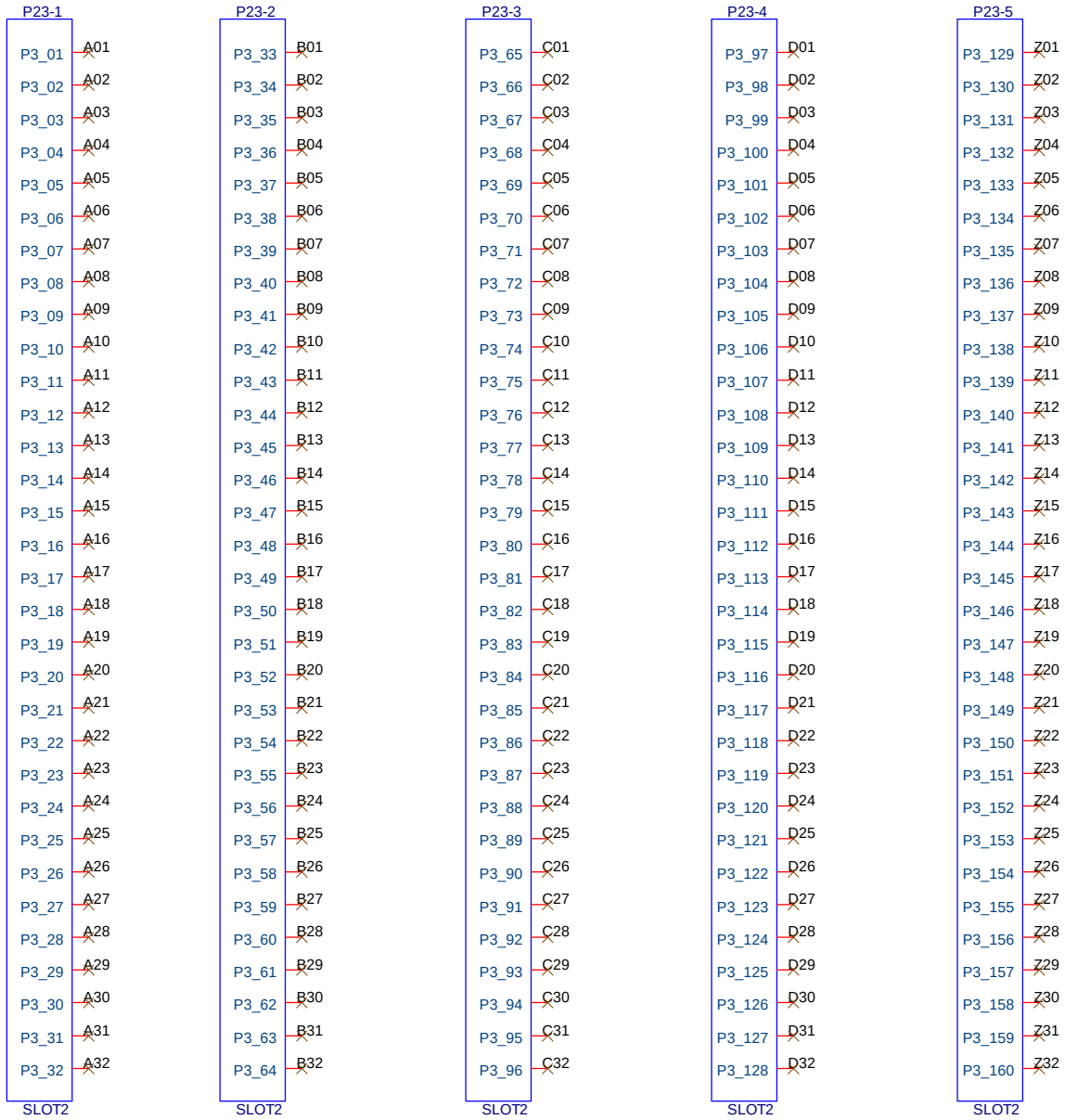


Title	SVX VRB J3 BACKPLANE	
Size	Document Number MISC	Rev B
Date: Wednesday, January 05, 2000	Sheet 1 of 22	



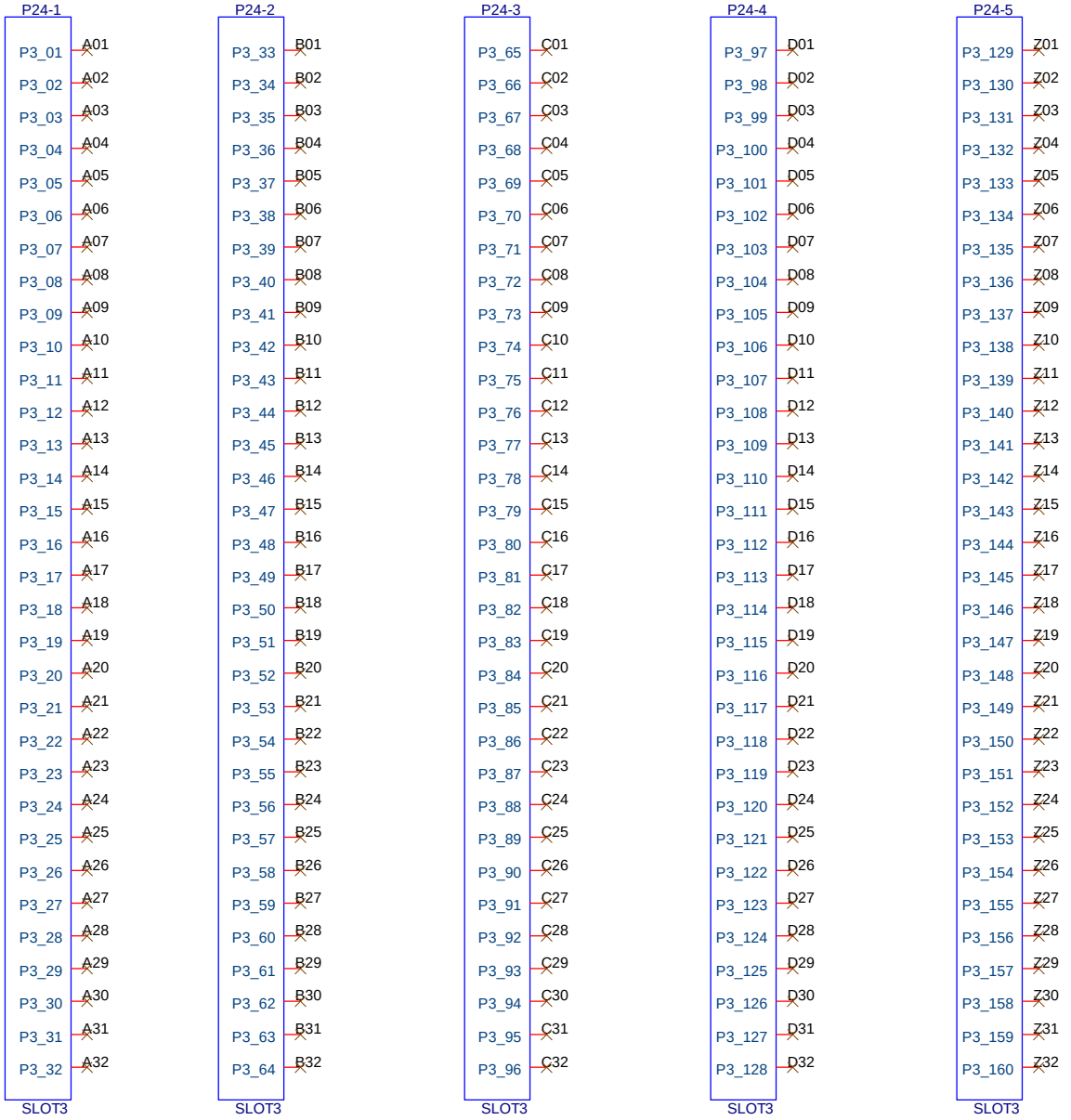
SLOT 1 (DIN CONNECTOR)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 1	Rev B
Date: Thursday, January 06, 2000	Sheet 2 of 22	



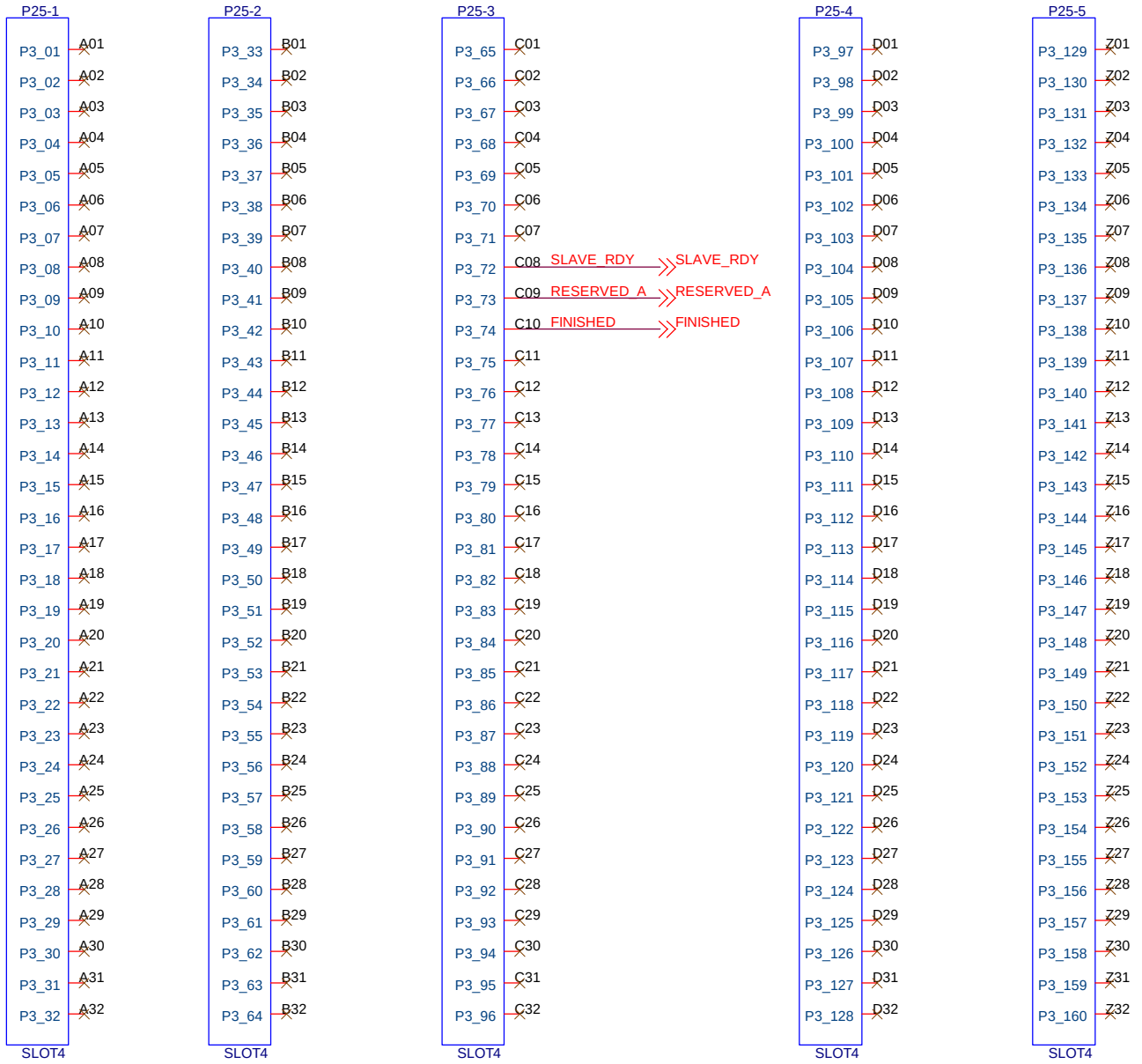
SLOT 2 (DIN CONNECTOR)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 2	Rev B
Date: Thursday, January 06, 2000	Sheet 13 of 22	



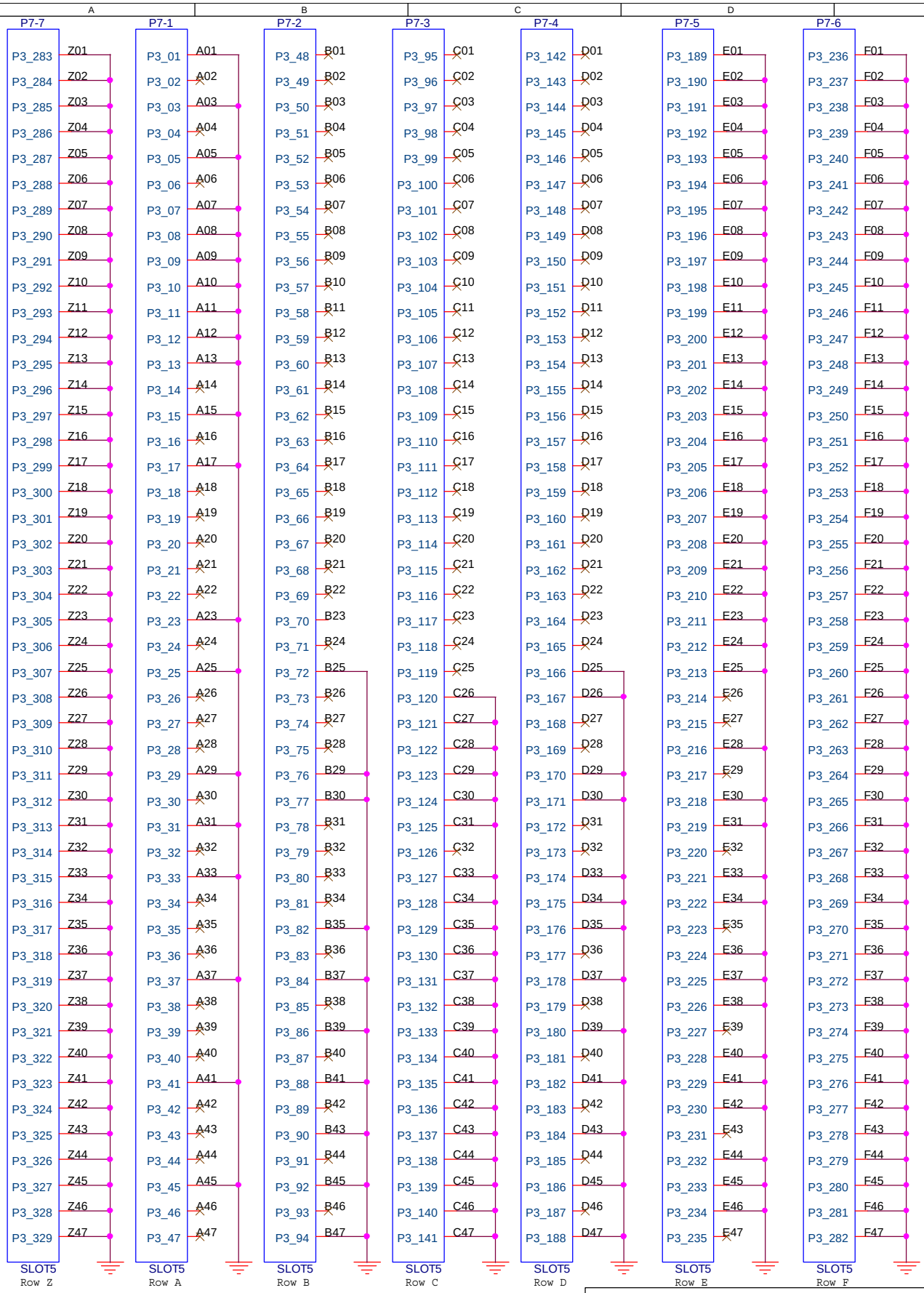
SLOT 3 (DIN CONNECTOR)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 3	Rev B
Date: Thursday, January 06, 2000	Sheet 16 of 22	



SLOT 4 (DIN CONNECTOR)

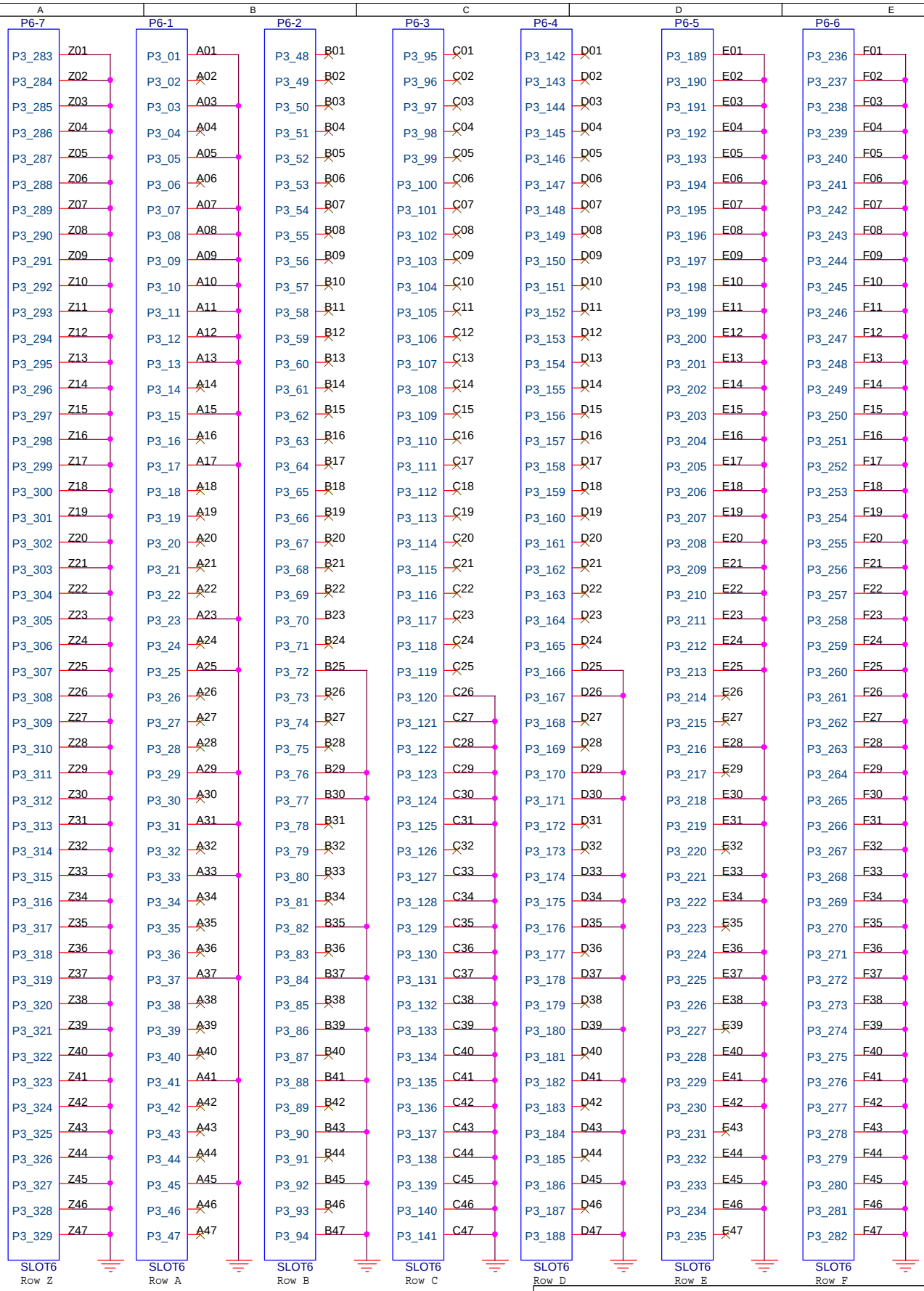
Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 4	Rev B
Date: Thursday, January 06, 2000	Sheet 17 of 22	



SLOT 5 (SRC SLOT)

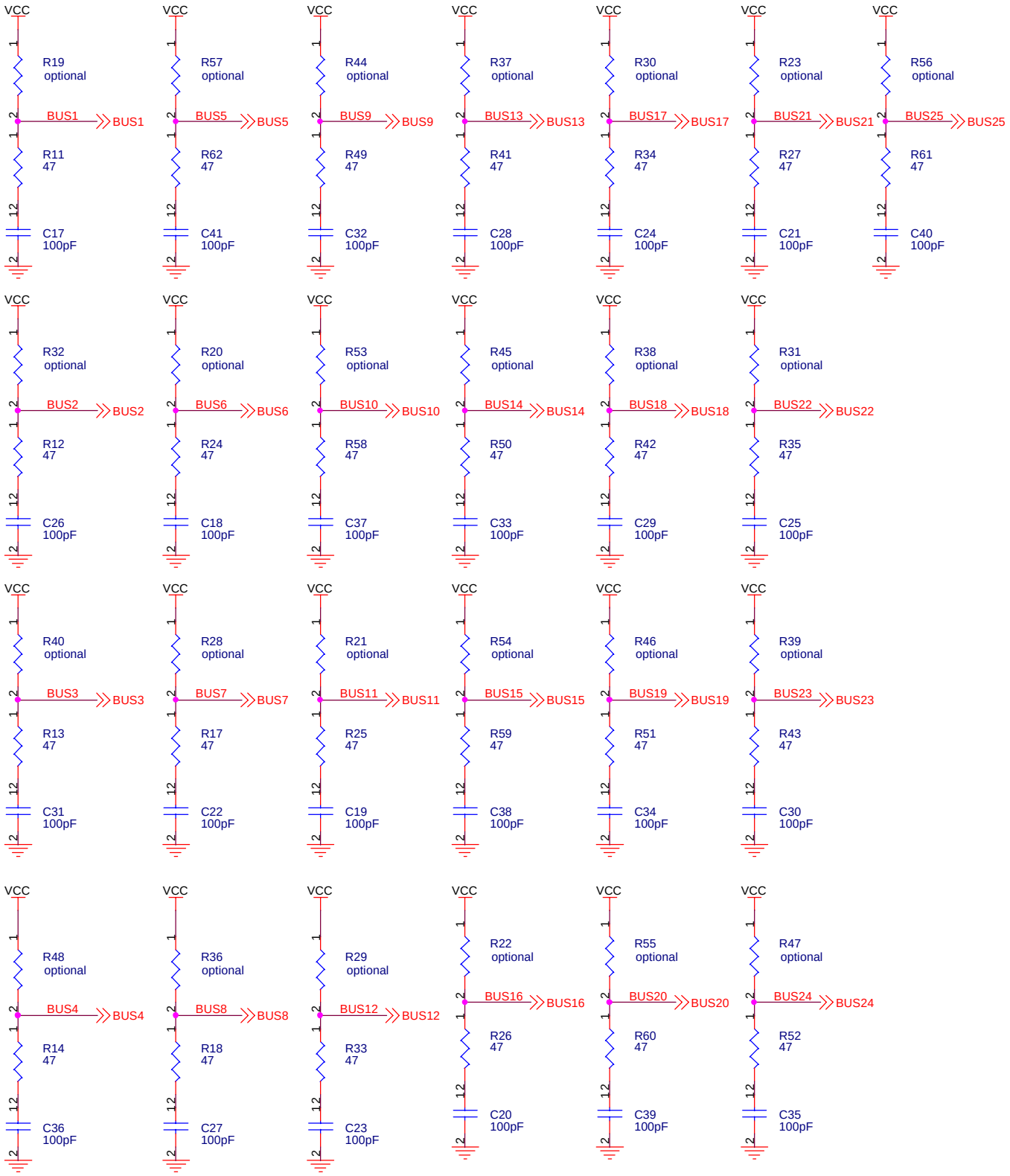
Page 21

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 5	Rev B
Date: Thursday, January 06, 2000	Sheet 20 of 22	



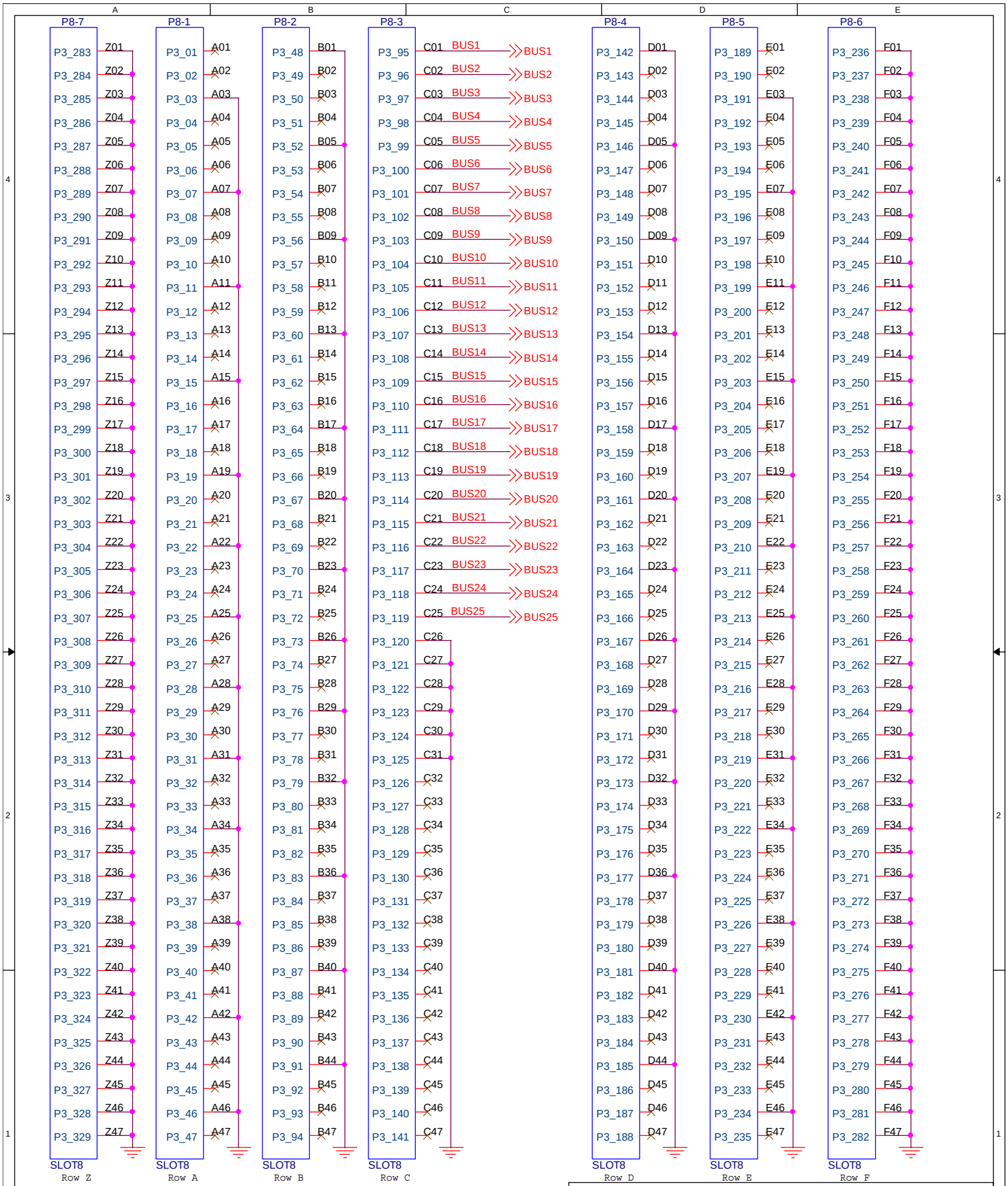
SLOT 6 (SRC SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 6	Rev B
Date: Thursday, January 06, 2000	Sheet 19 of 22	



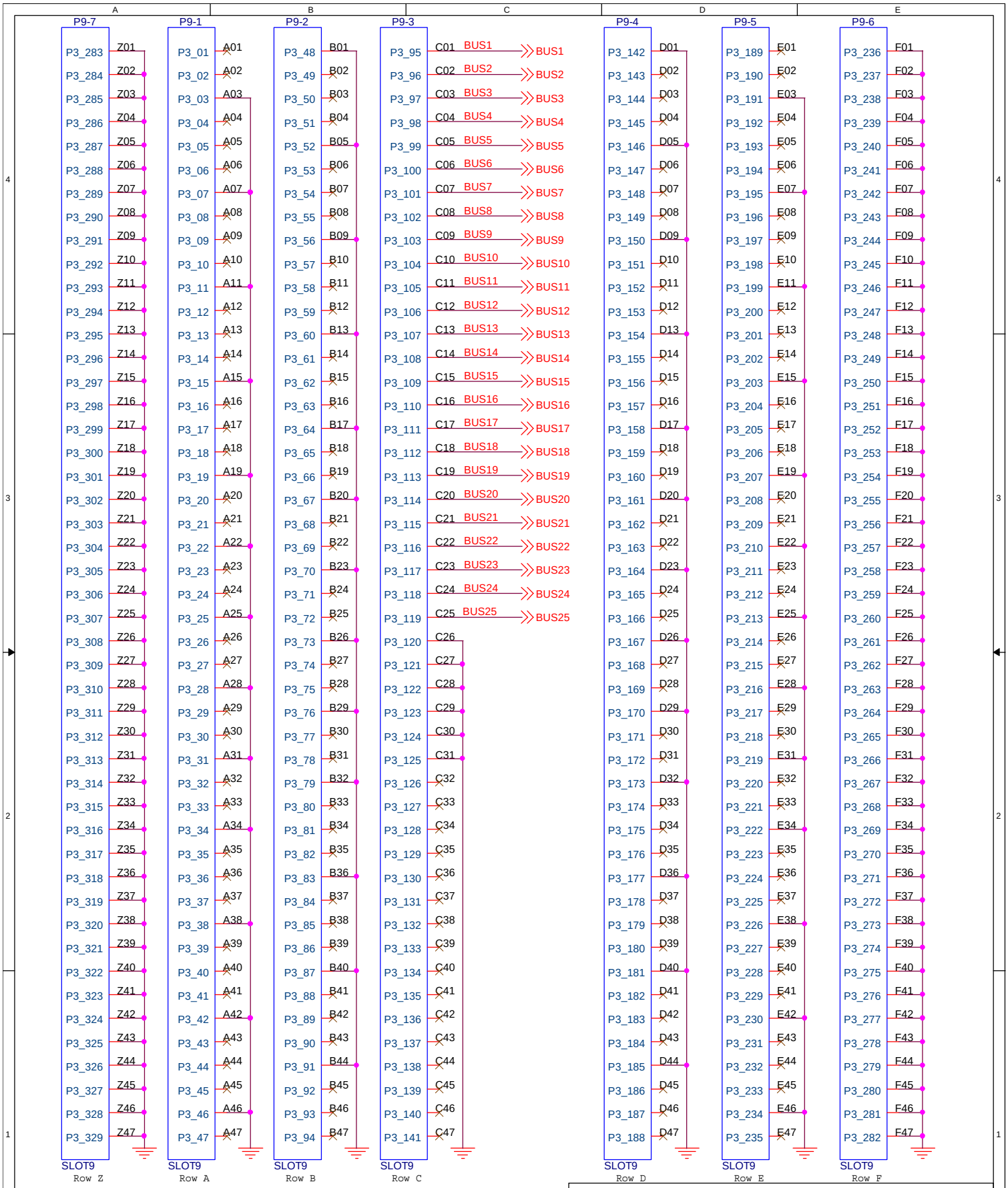
Slot 7 (TTL BUS Terminations)
Resistors to VCC are not mounted unless needed

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 7	Rev B
Date: Thursday, January 06, 2000	Sheet 18 of 22	



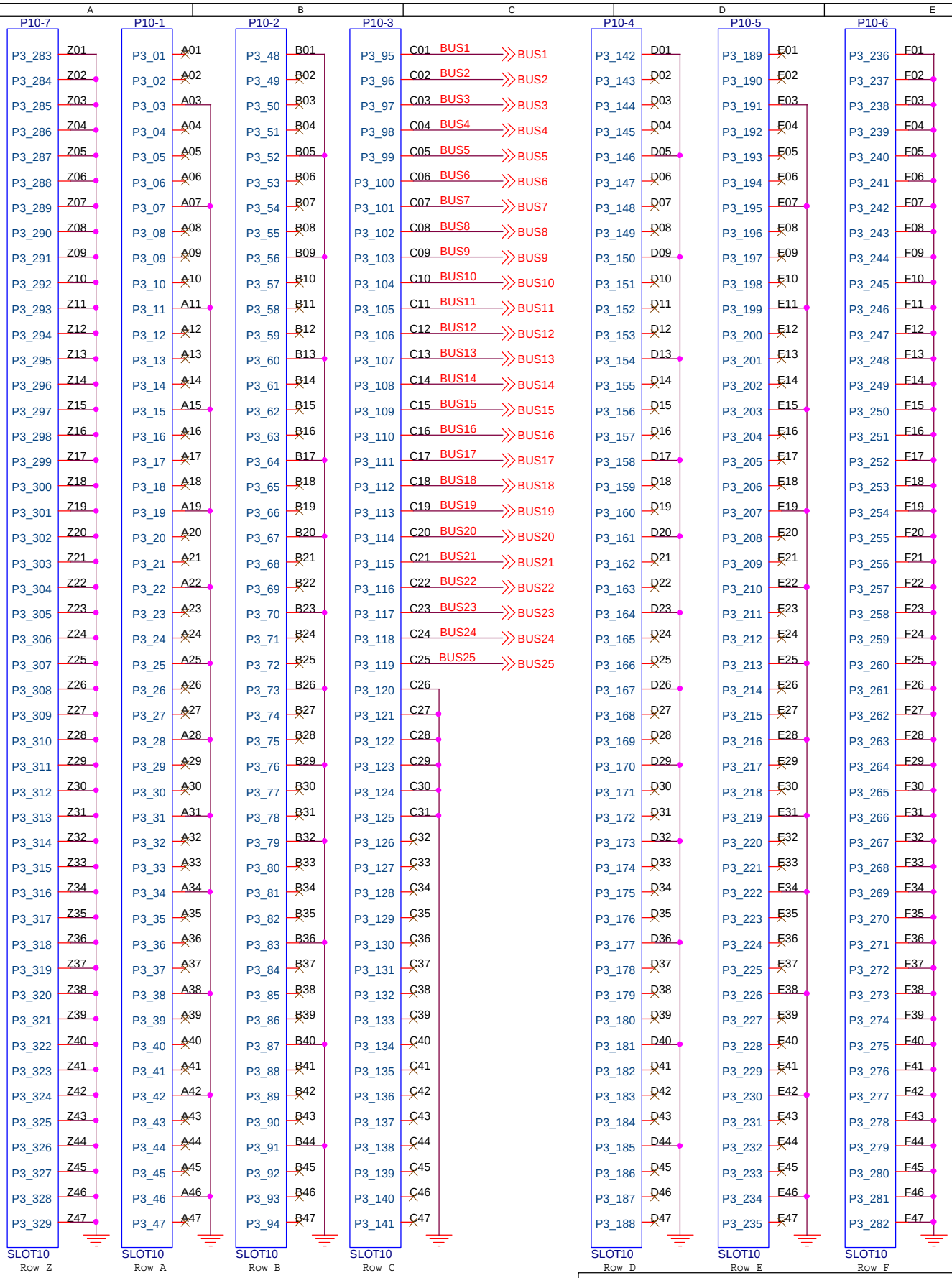
SLOT 8 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 8	Rev B
Date: Thursday, January 06, 2000	Sheet 21 of 22	



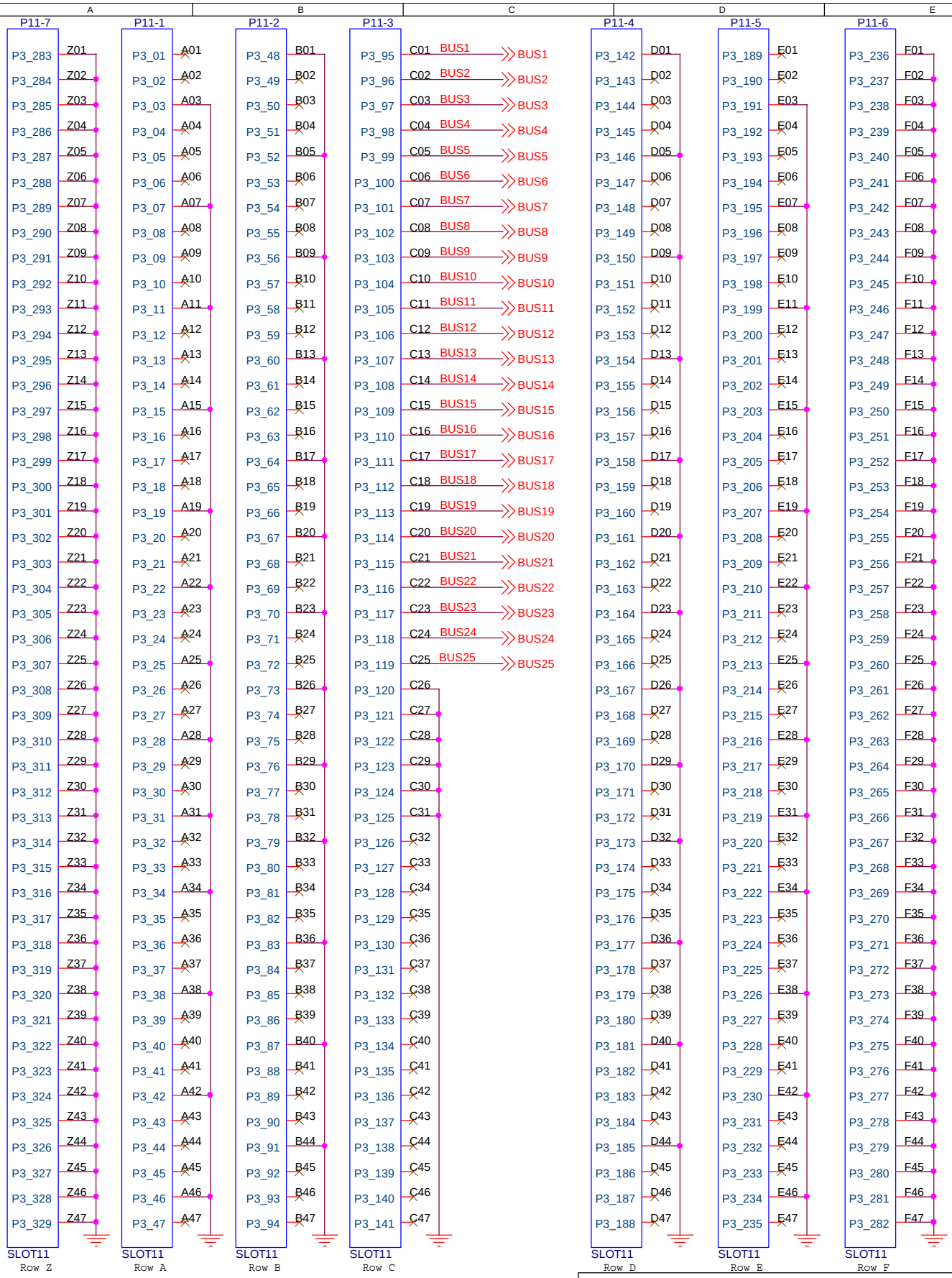
SLOT 9 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE
Size	Document Number SLOT 9 — Rev B
Date:	Thursday, January 06, 2000 — Sheet 22 of 22



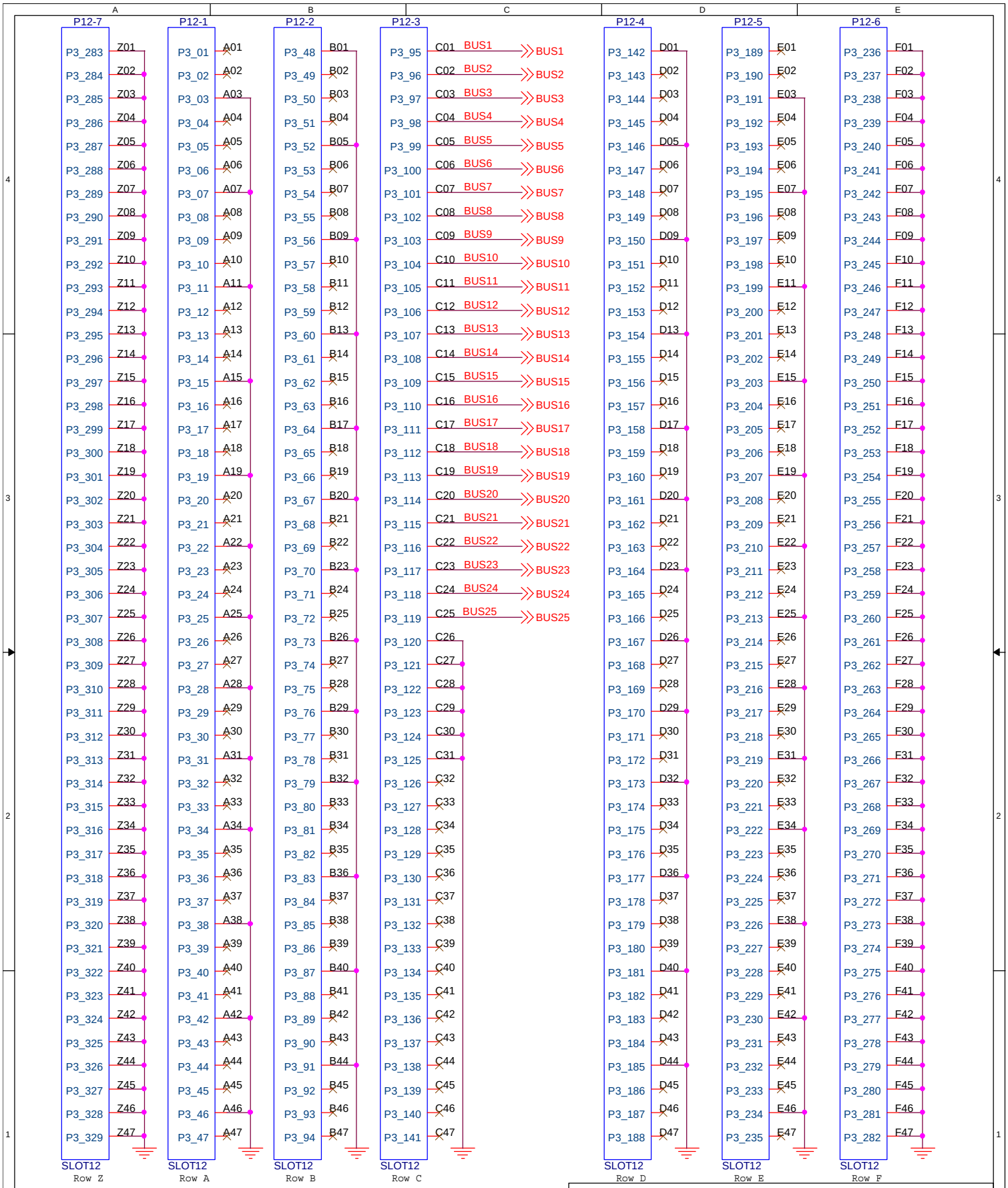
SLOT 10 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE
Size	Document Number SLOT 10
Rev	B
Date:	Thursday, January 06, 2000
Sheet	3 of 22



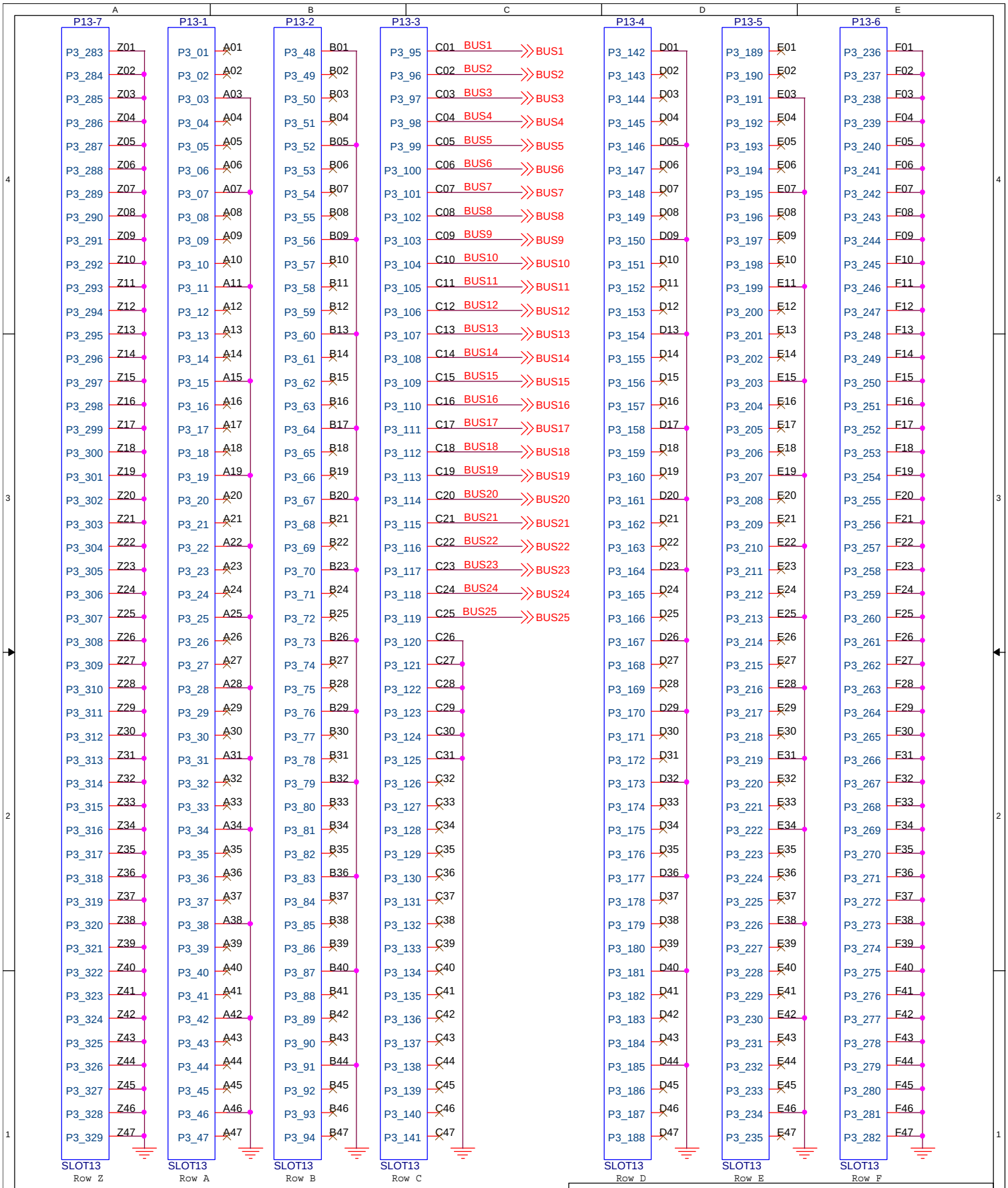
SLOT 11 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 11	Rev B
Date: Wednesday, January 05, 2000	Sheet 4 of 22	



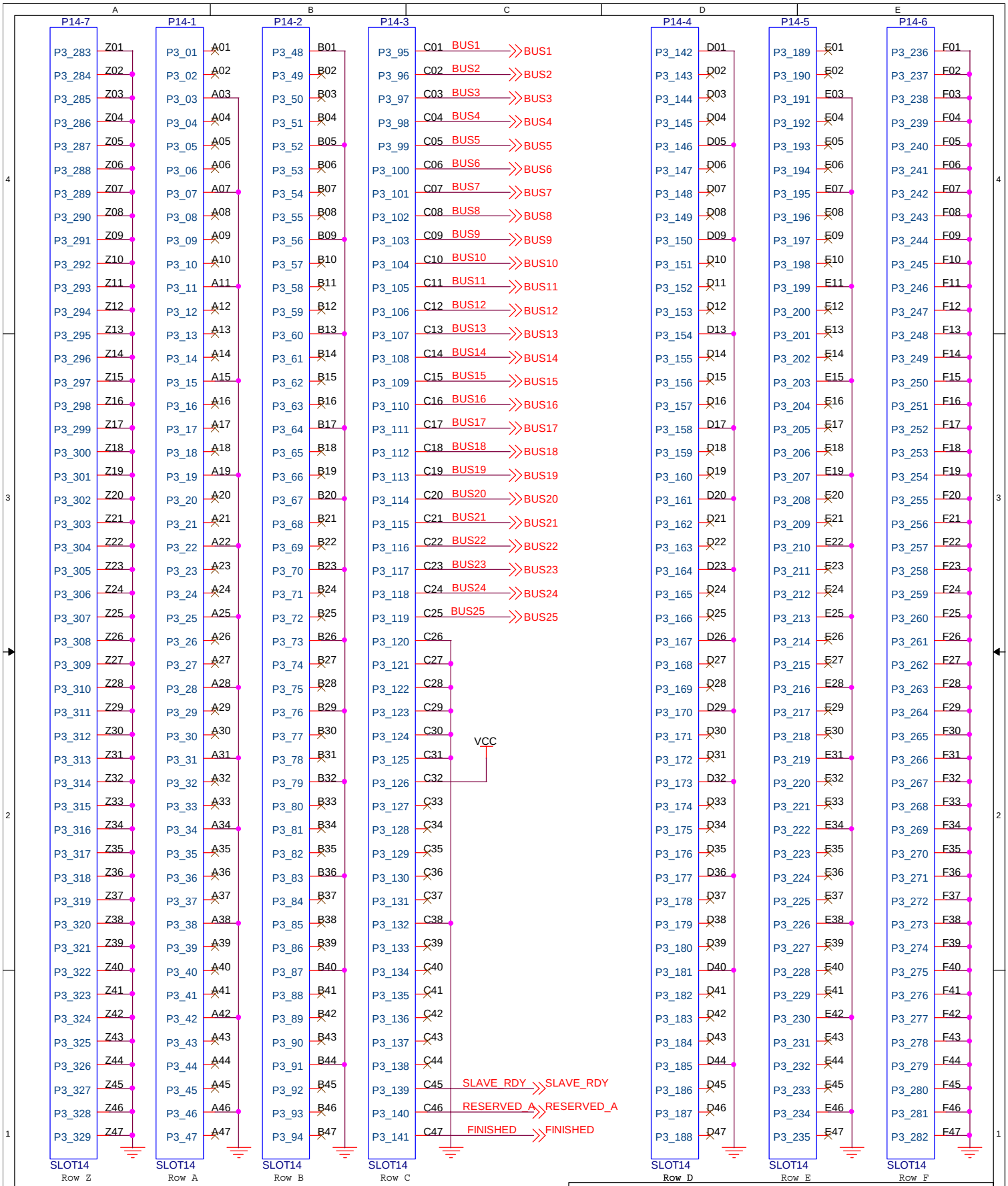
SLOT 12 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 12	Rev B
Date: Thursday, January 06, 2000	Sheet 5 of 22	



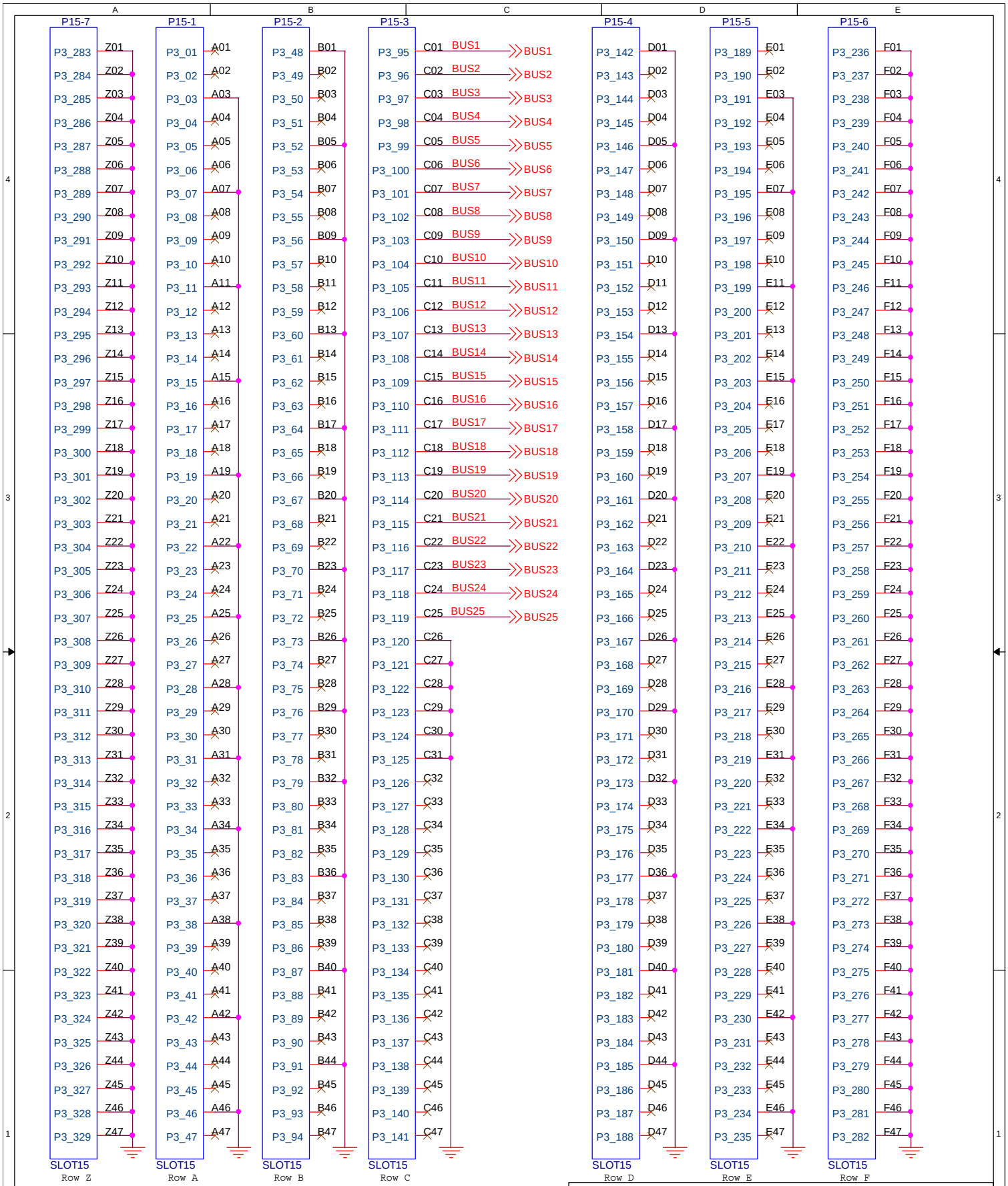
SLOT 13 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 13	Rev B
Date: Thursday, January 06, 2000	Sheet 6 of 22	



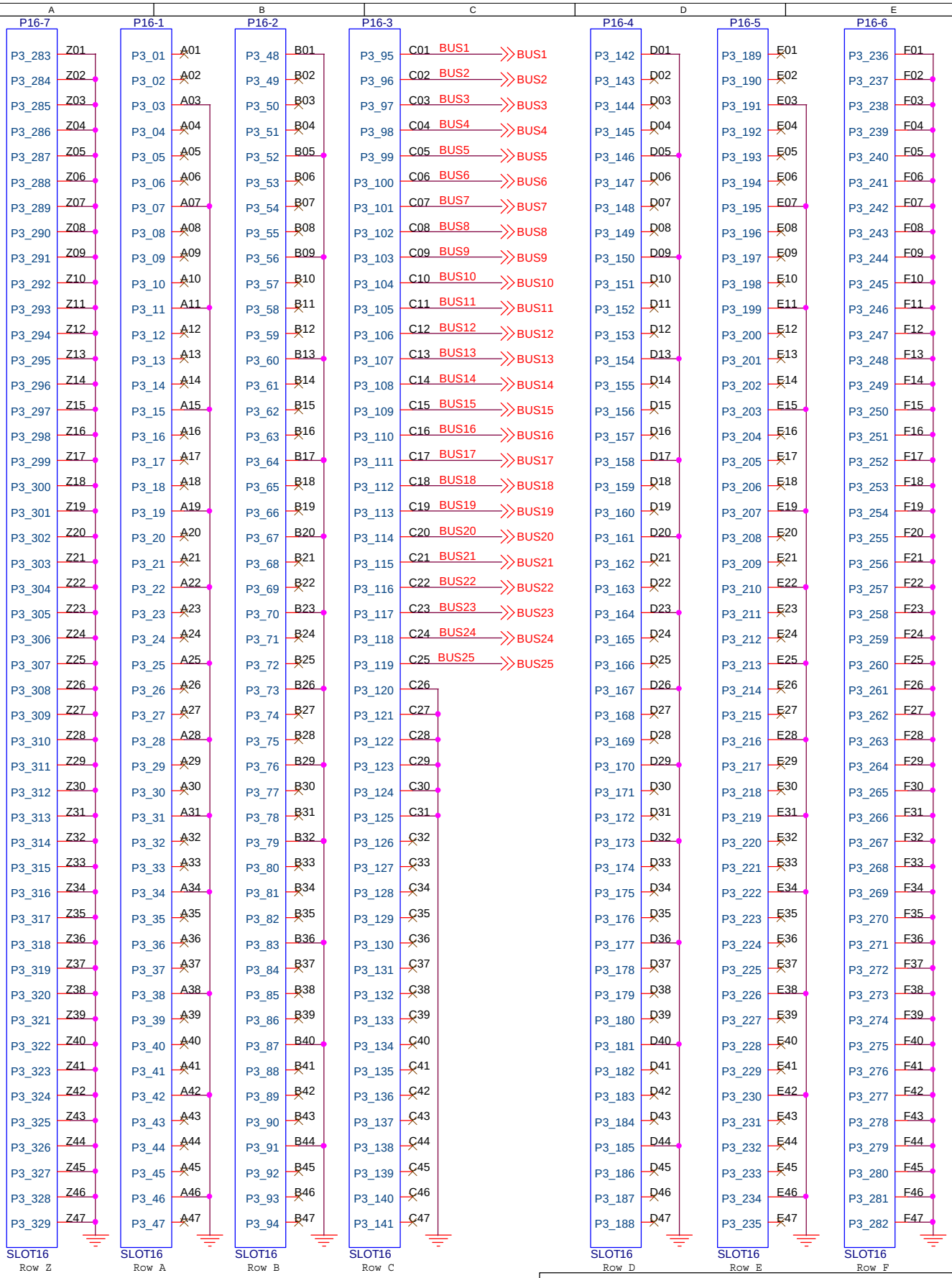
SLOT 14 (VFO SLOT)

Title	SVX VRB J3 BACKPLANE
Size	Document Number SLOT 14
Rev	B
Date:	Thursday, January 06, 2000
Sheet	7 of 22



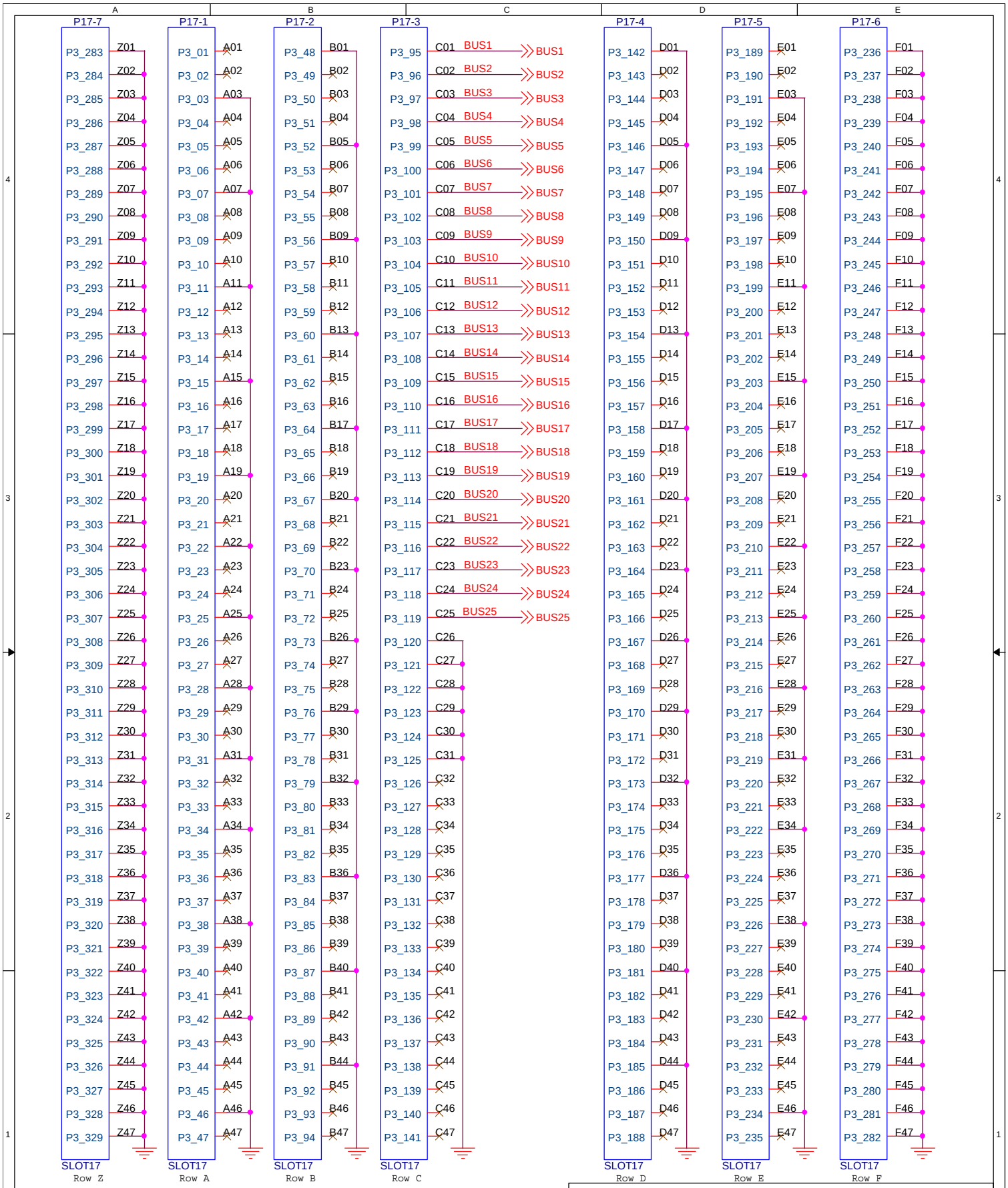
SLOT 15 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 15	Rev B
Date: Thursday, January 06, 2000	Sheet 8 of 22	



SLOT 16 (VRB SLOT)

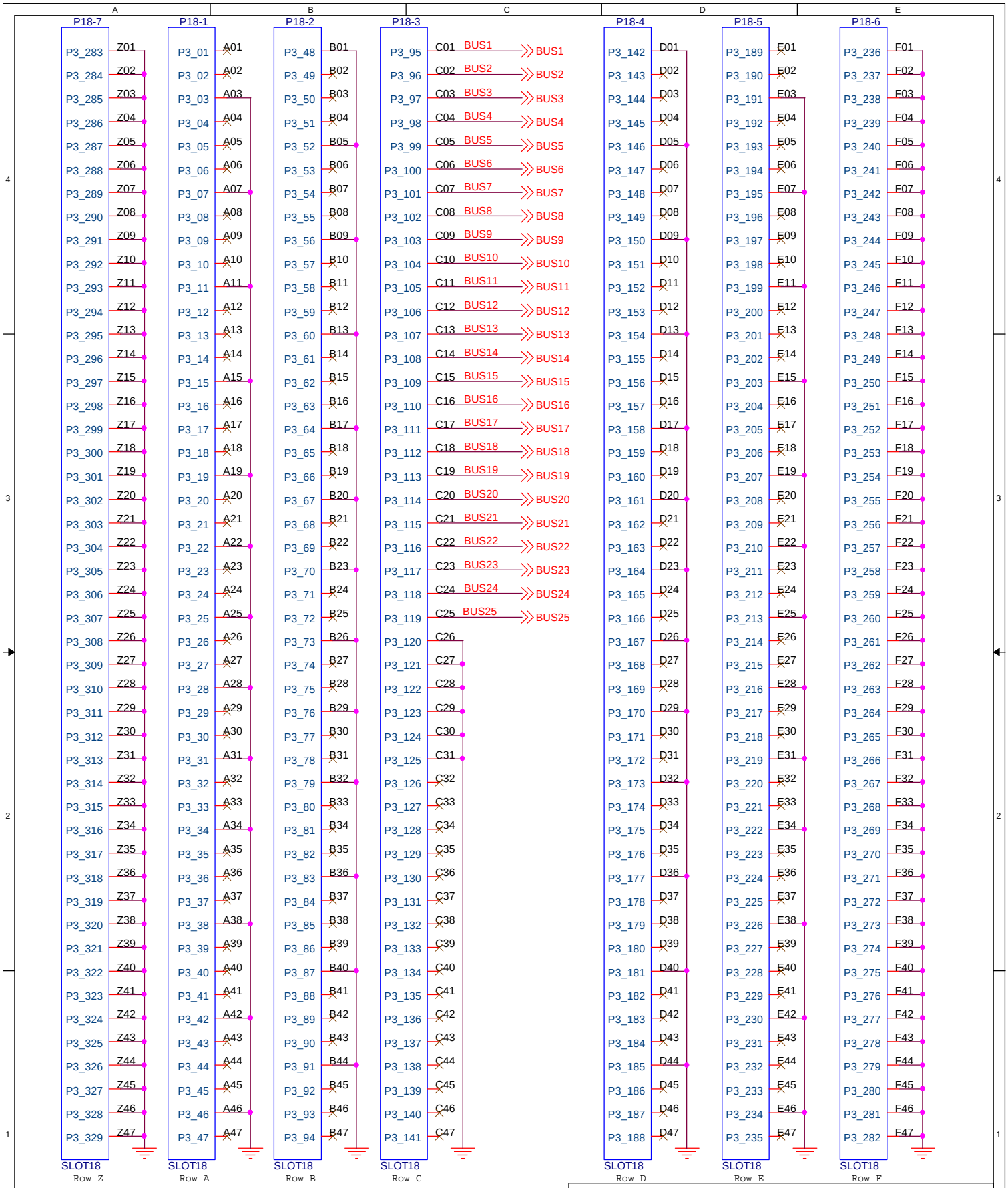
Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 16	Rev B
Date: Thursday, January 06, 2000	Sheet 9 of 22	



SLOT 17 (VRB SLOT)

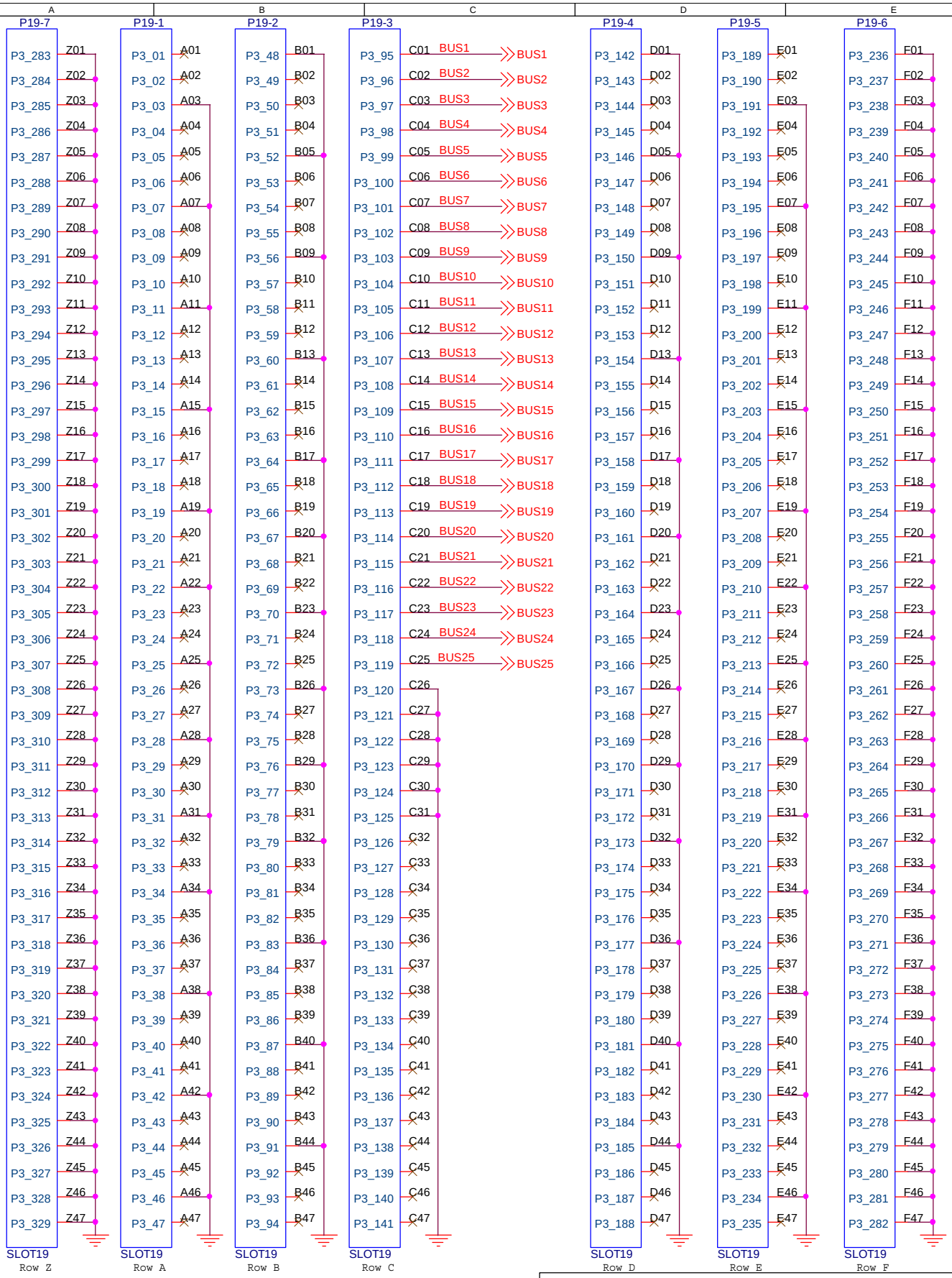
Page 33

Title	SVX VRB J3 BACKPLANE
Size	Document Number SLOT 17
Rev	B
Date:	Thursday, January 06, 2000
Sheet	10 of 22



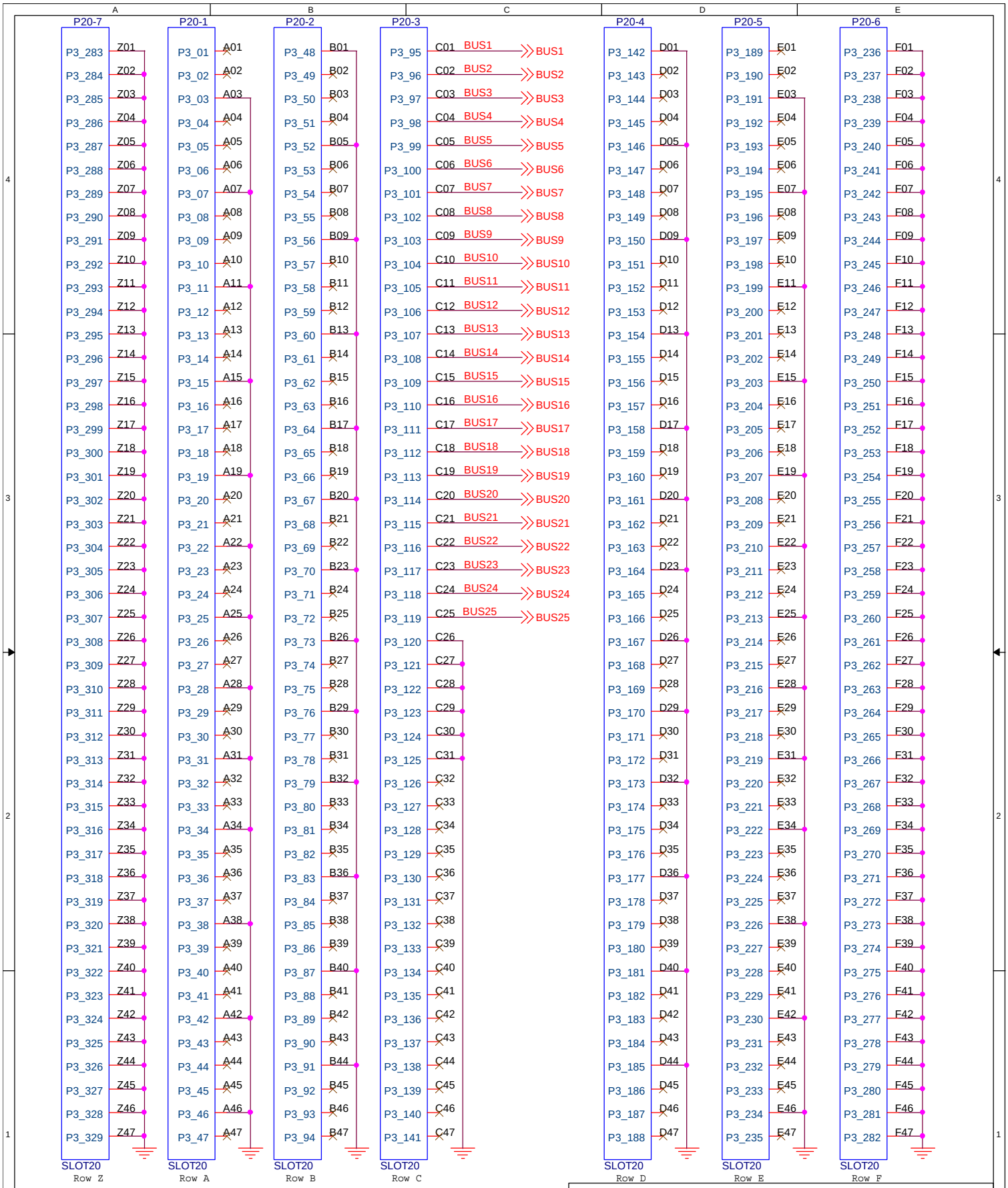
SLOT 18 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 18	Rev B
Date: Thursday, January 06, 2000	Sheet 11 of 22	



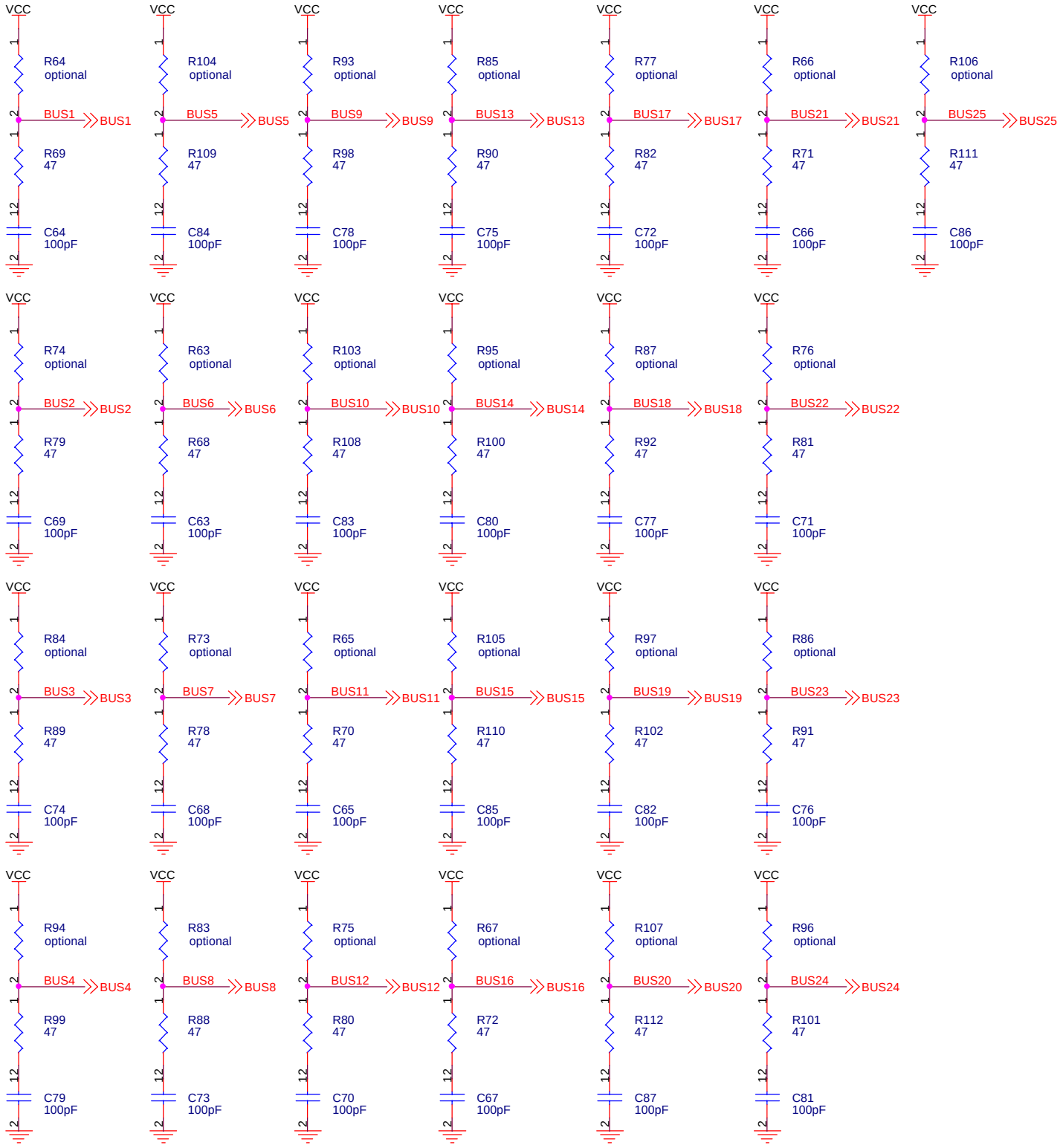
SLOT 19 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 19	Rev B
Date: Thursday, January 06, 2000	Sheet 12 of 22	



SLOT 20 (VRB SLOT)

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 20	Rev B
Date: Thursday, January 06, 2000	Sheet 14 of 22	



Slot 21 (TTL BUS Terminations)
Resistors to VCC are not mounted unless needed

Title	SVX VRB J3 BACKPLANE	
Size	Document Number SLOT 21	Rev B
Date: Thursday, January 06, 2000	Sheet 15 of 22	