

JPD status

- J-Crate Power consumption
- JPD Top level functional diagram (CAEN vs. MDI)
- Detailed functional diagram
 - JPD Internal block diagram
 - JPD to J-Crate interconnection
 - JPD to JMDC wiring
 - JPD to JHIF and JLIF wiring
 - Grounding scheme for JPD and J-Crate

AMS Technical Interchange Meeting
CERN, May 3 - 11 2002

- DC-DC Control
- JPD Control and Status signals
- Signal Conditioning Circuit
 - o Signal Condition Circuit to USCMs interconnection
 - o Current and Voltage Sensors
 - o Signal Conditioning Amplifiers

- Current Status of JPD Design

- JPD loads specification study - Done
- JPD functional specification design - Done
- Selection of type and number of DC-DC converters - Done
- USCMs to JPD interface (schematic design) - Done
- JPD-elec schematic design - 50% (Pending)
- Signal conditioning circuit schematic design - Done
- BOM generation – Pending
- PCB design – Pending

Power consumption of one JMDC + USCMs, JPD-elec, JHIF & JLIF

	+3.6V (I Max)	+5.6V (I Max)	-5.6V (I Max)
JSBC	3.60 A		
JBU	3.00 A		
JIM-AMSW&1553	0.84 A	0.12 A	
JIM-CAN	0.42 A	0.48 A	
JIM-HRDL	1.84 A	0.60 A	0.72 A
Total Max Current:	9.70 A	1.20 A	0.72 A
Max Power:	32.01 W	6.72 W	3.75 W
		+5.6V (I Max)	-5.6V (I Max)
JFOM#A[B]		0.60 A	1.20 A
JLIF		0.53 A	
J422		0.63A	
USCM#A		0.40A	
USCM#B		0.40A	
JPD-elec		0.60A	
Total Max Current		3.16 A	1.20 A
Max Power		17.7 W	6.72 W

Selected DC-DC converters:

MDI

+3.6V @ 9.70A => MDI 6031-SO3.3 (49.5W / 15.0A max)

+5.6V @ 1.20A => MDI 6690-SO5 (6.5W / 1.3A max)

-5.6V @ 0.72A => MDI 6690-SO5 (6.5W / 1.3A max)

+5.6V @ 3.16A => MDI 6107-SO5 (20.0W / 4.0A max)

-5.6V @ 1.90A => MDI 6107-SO5 (20.0W / 4.0A max)

CAEN

+3.6V @ 9.70A => S9023(+3.6) (40.0W / 11.0A max)

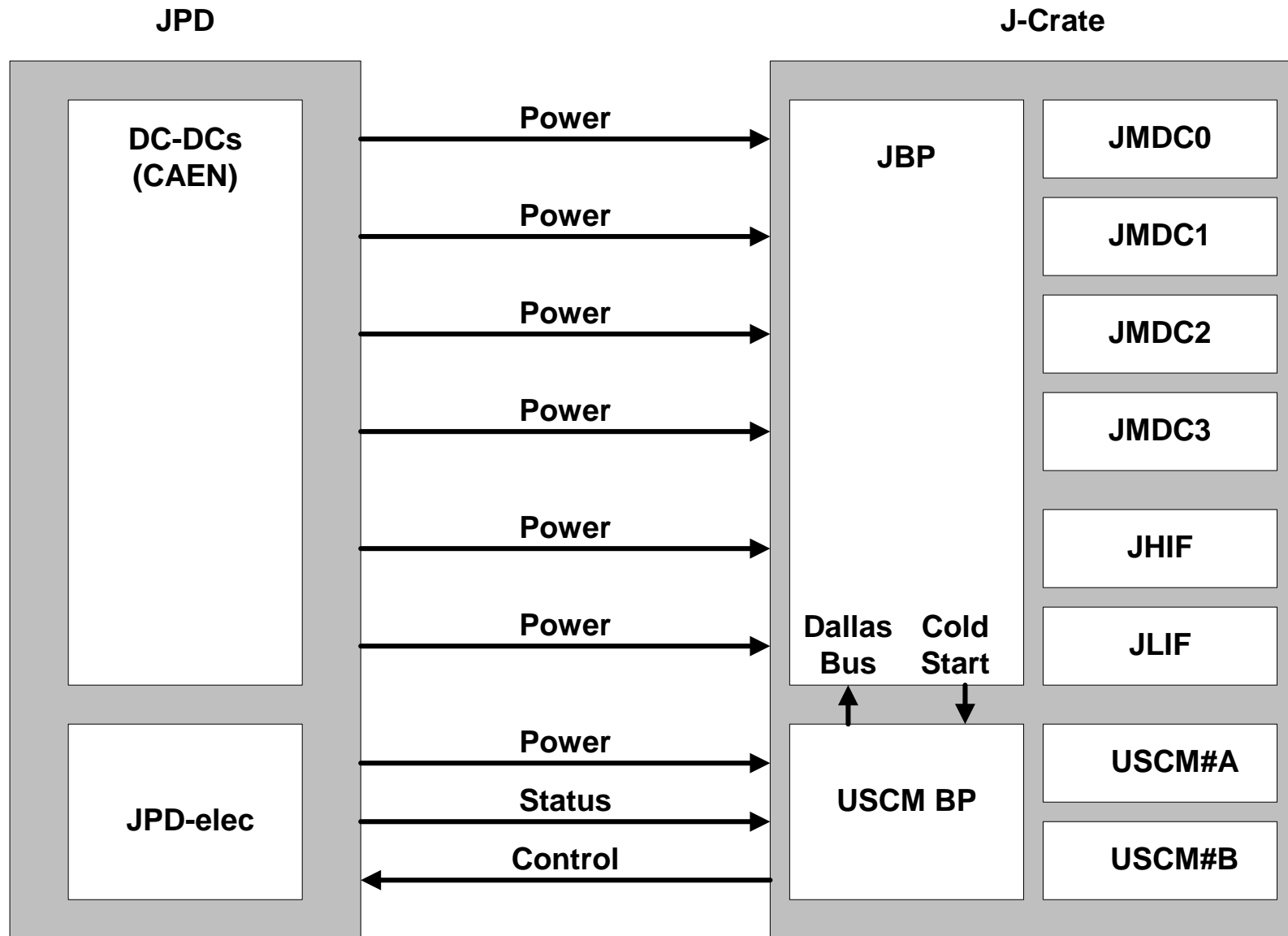
+/-5.6V @ 1.20A => S9022(+/-5.6) (2 x 6.2W / 2 x 1.1A max)

+5.6V @ 3.16A => S9024(+5.6) (25.0W / 4.5A max)

-5.6V @ 1.20A => S9024(+5.6) (25.0W / 4.5A max)

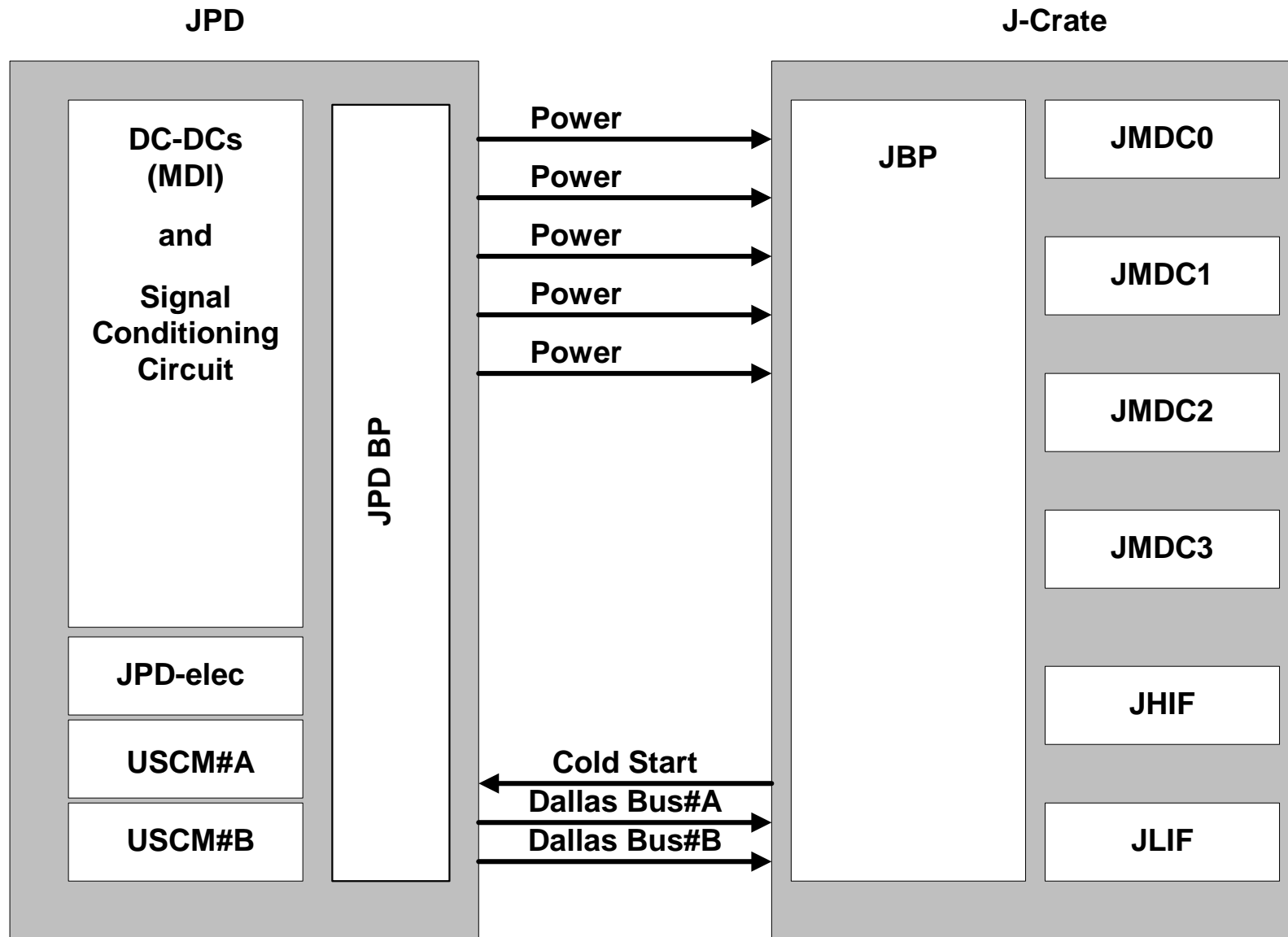
JPD Top Level Functional Diagram Option A

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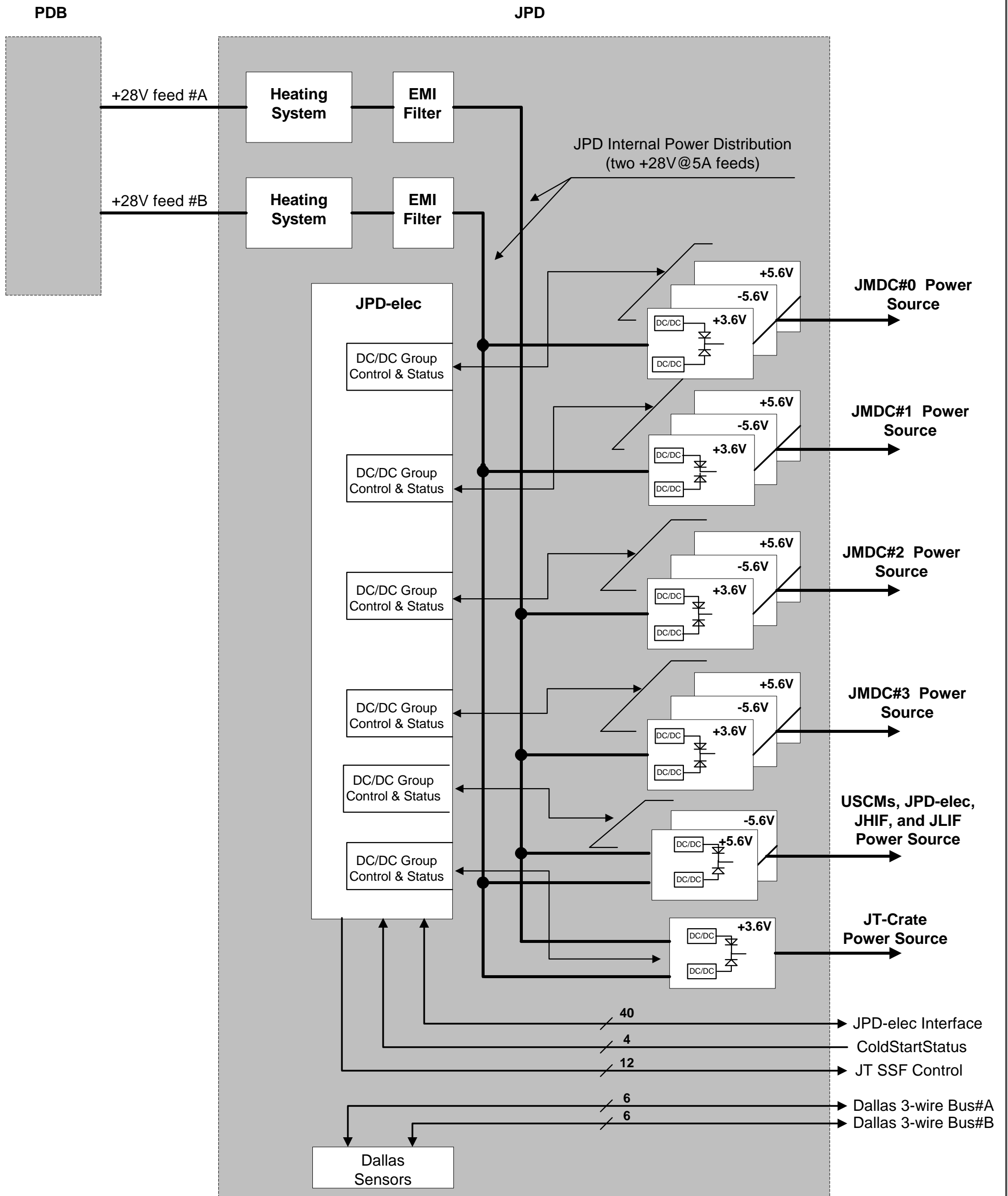


JPD Top Level Functional Diagram Option B

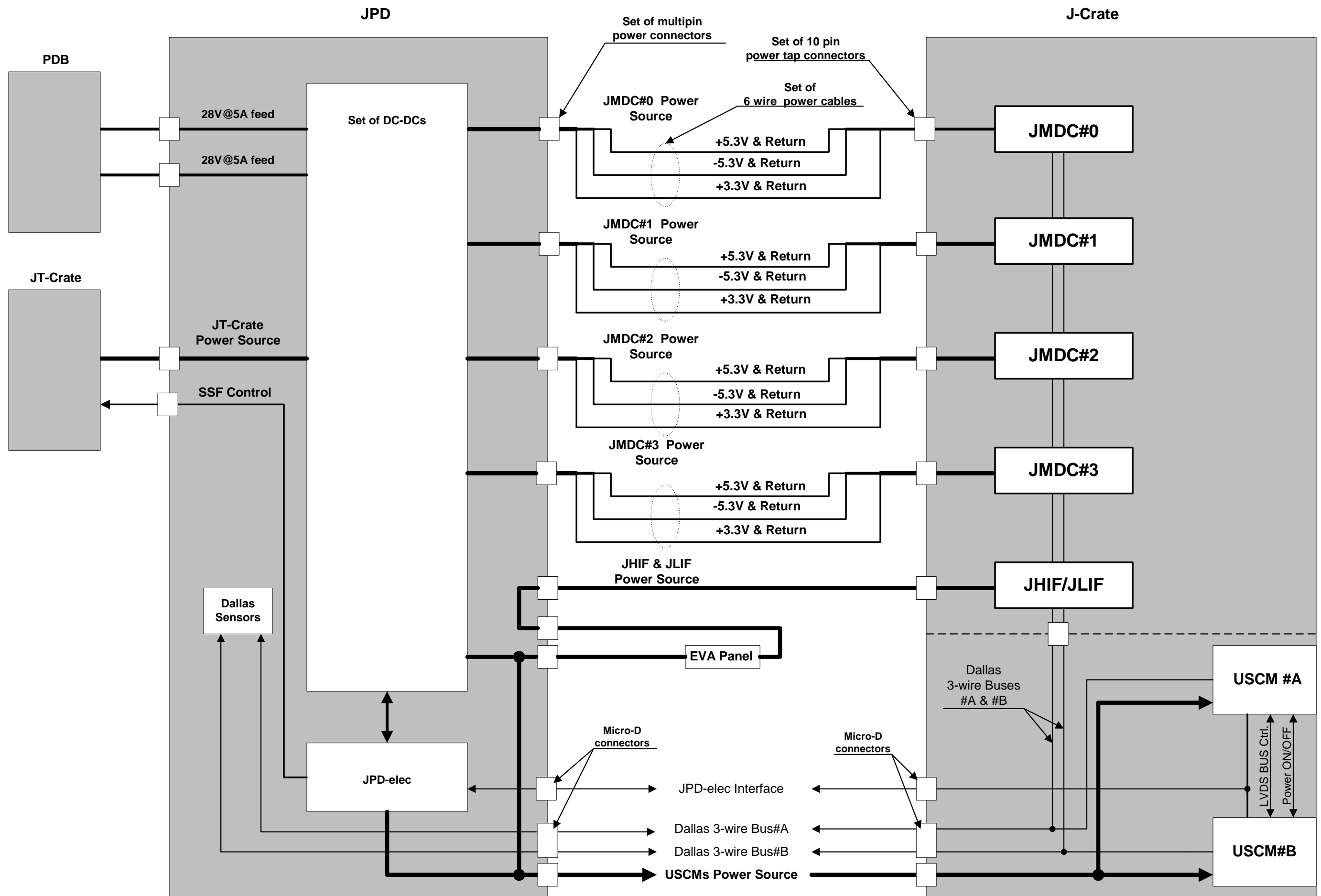
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JPD Block Diagram



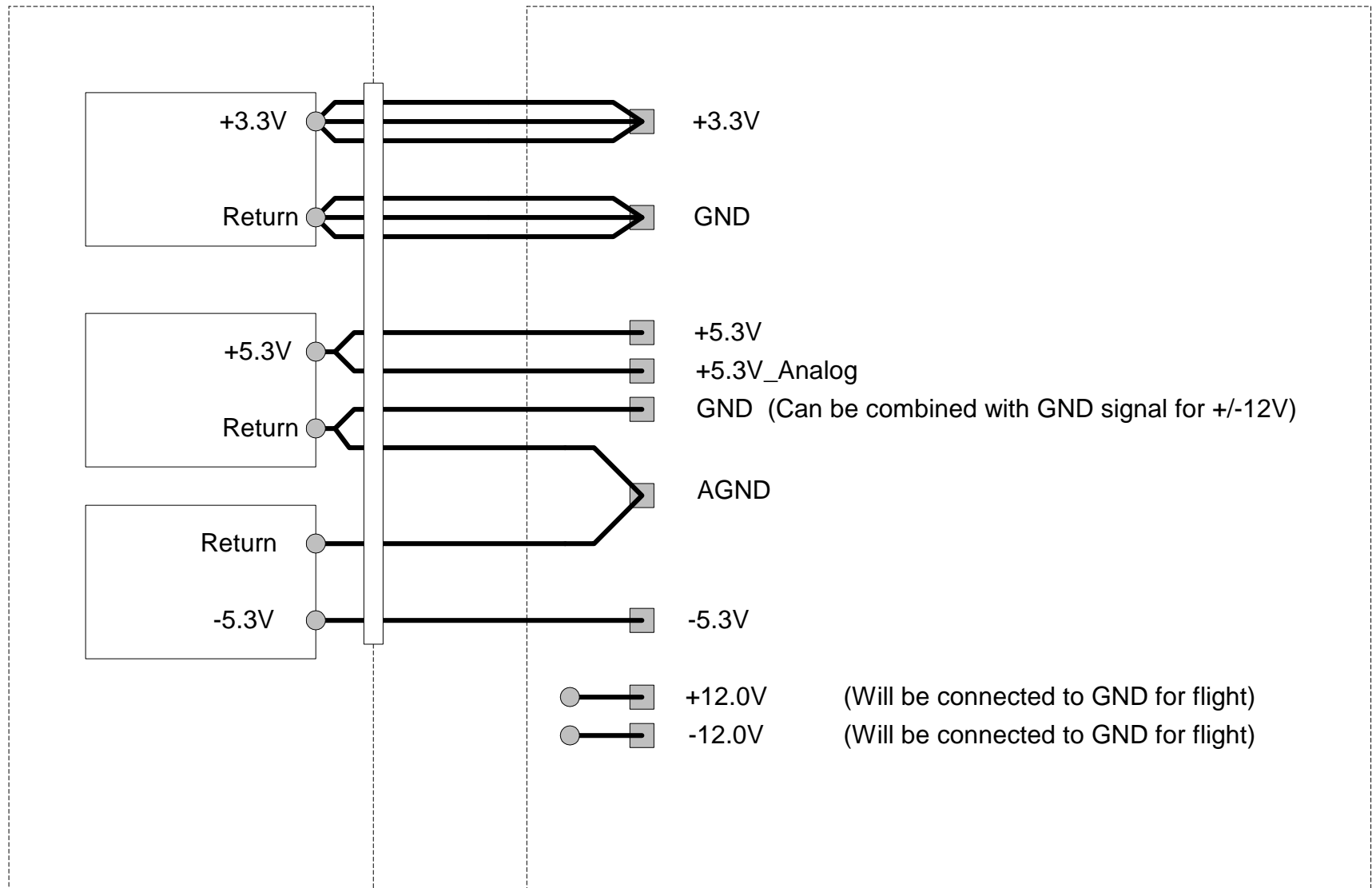
JPD to J-Crate Interconnection



JPD to JMDC Wiring Diagram

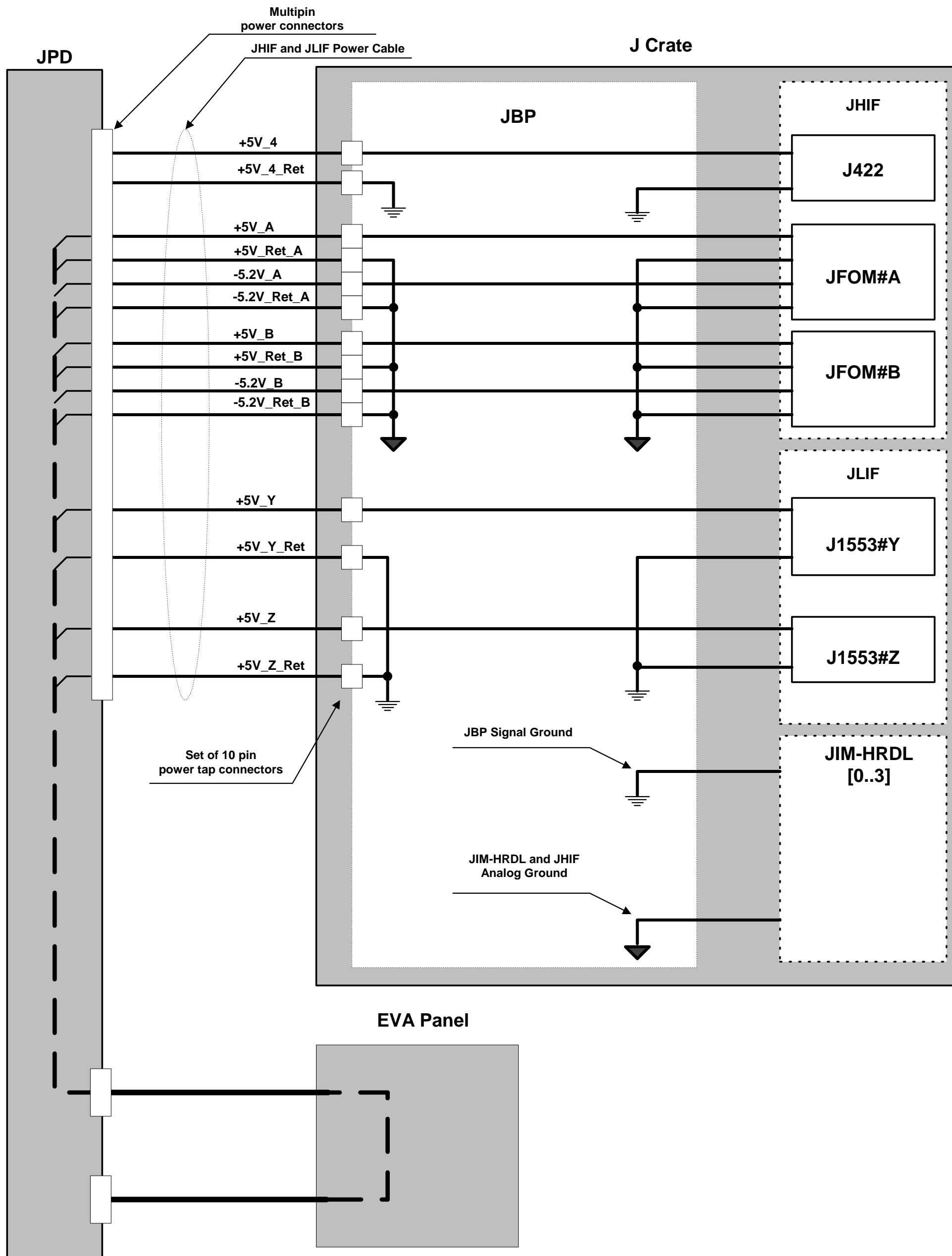
JPD

JBP

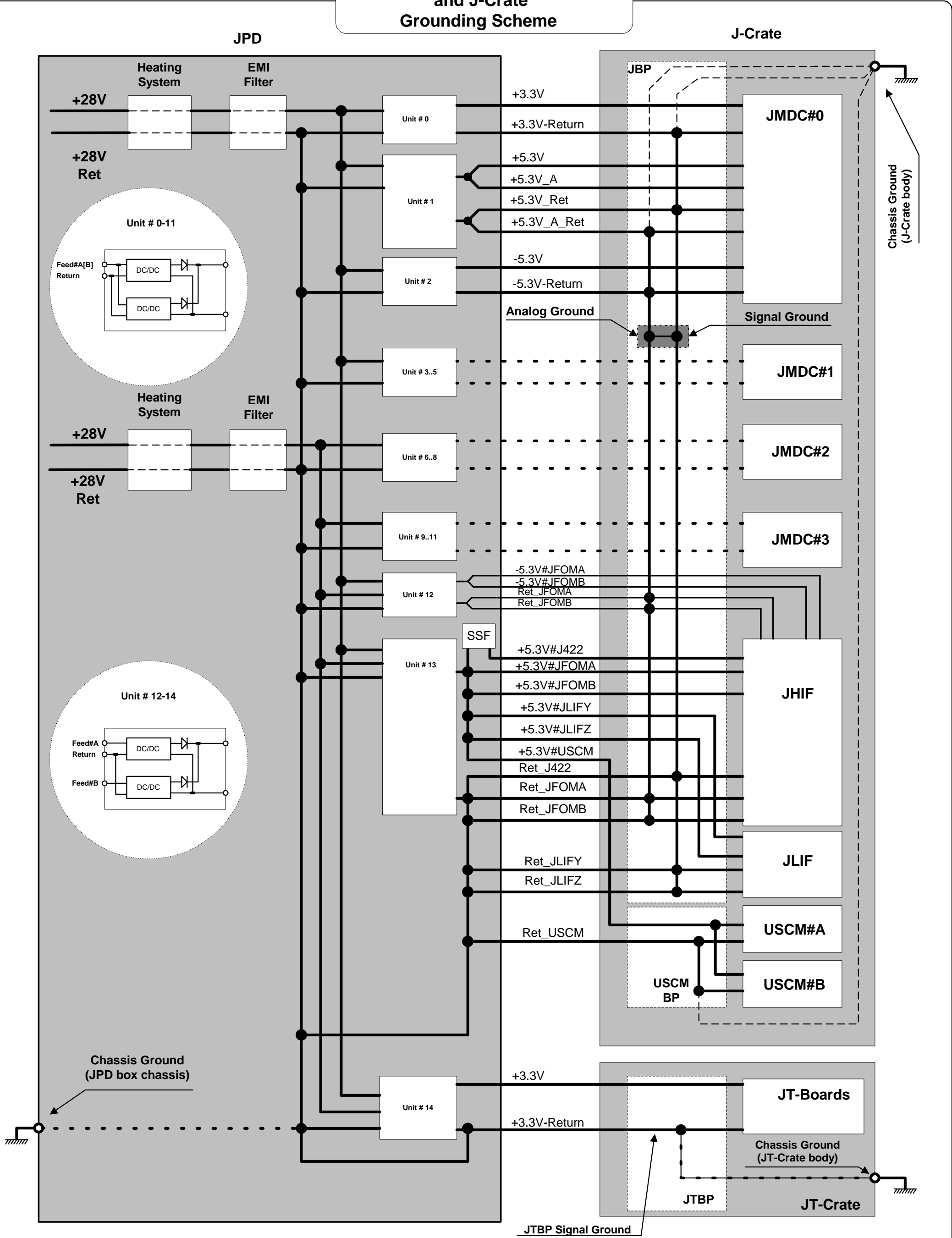


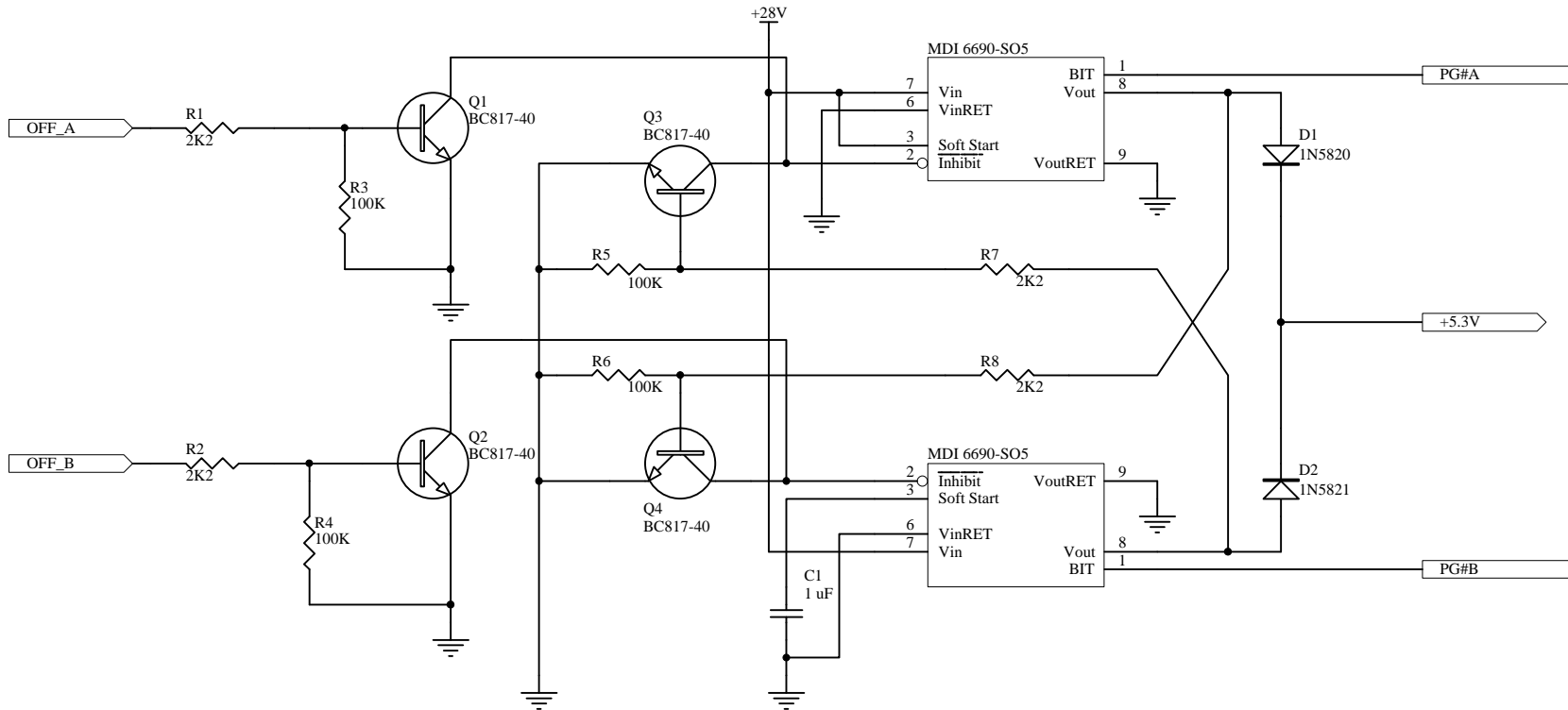
JPD to JHIF and JLIF Wiring Diagram

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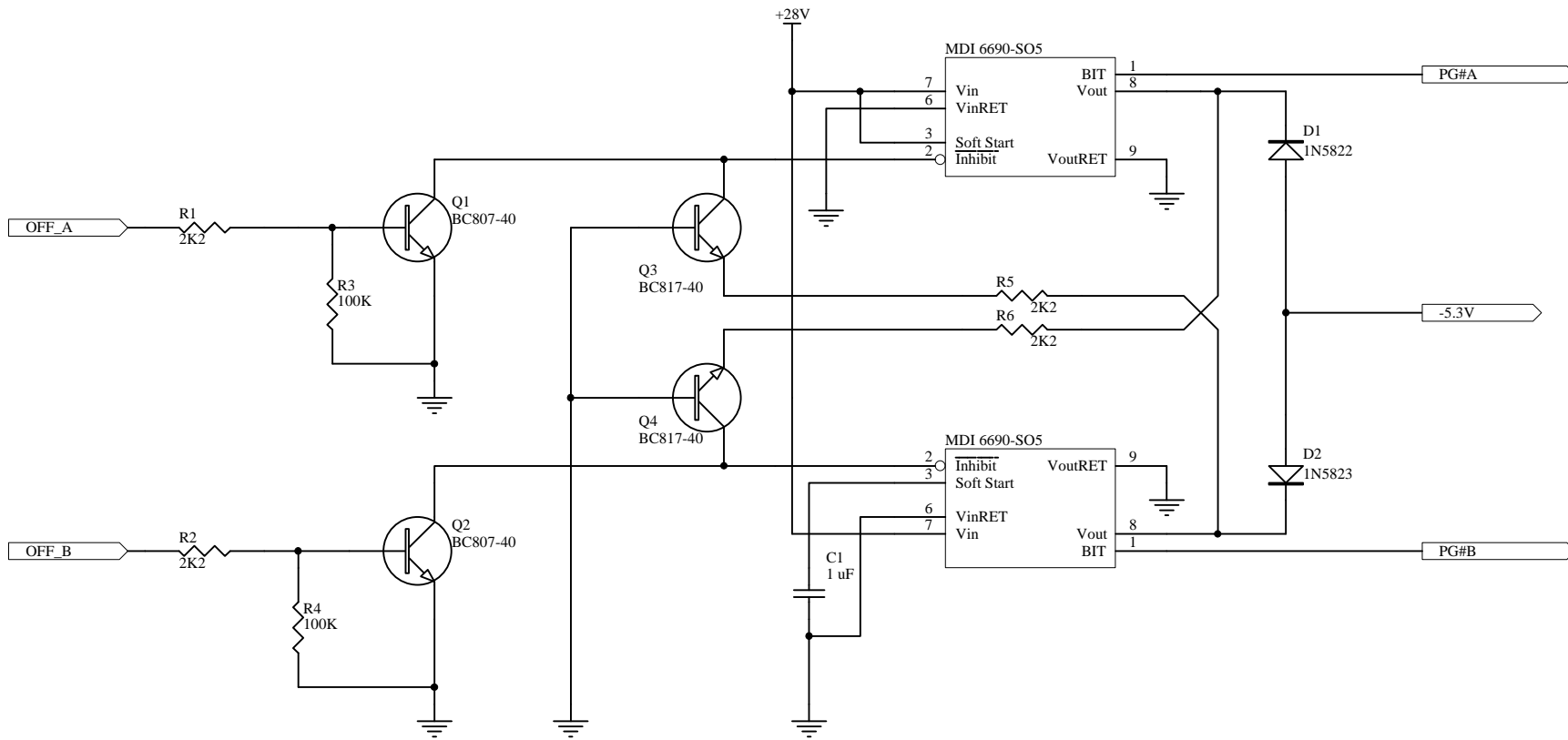


JPD, JT-Crate, and J-Crate Grounding Scheme





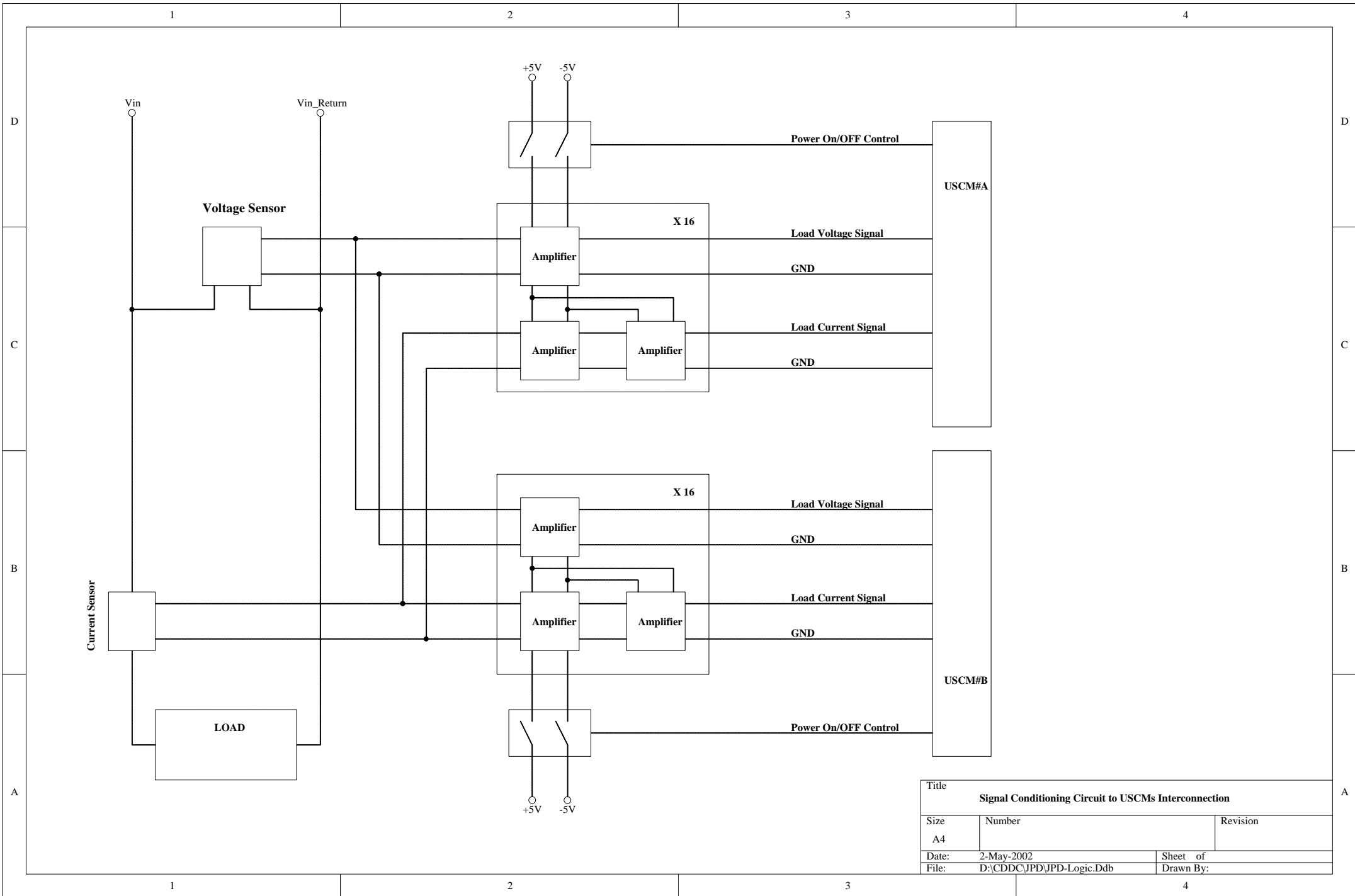
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DC-DC control (Positive Voltage)		
Size	Number	Revision
A4		
Date:	2-May-2002	Sheet of
File:	D:\CDDC\JPD\JPD-Logic.Ddb	Drawn By:



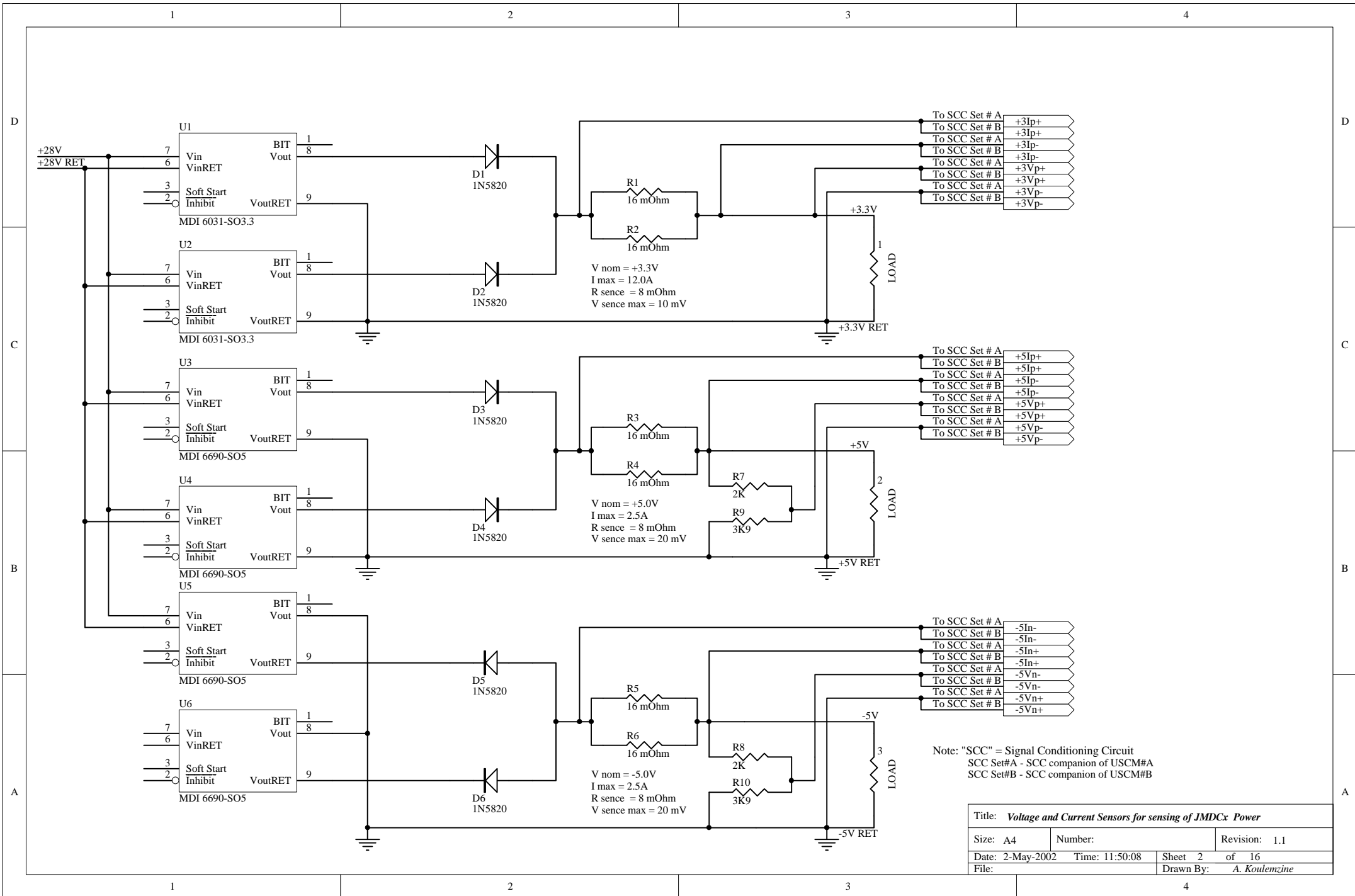
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DC-DC control (Negative Voltage)		
Size	Number	Revision
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Date:	2-May-2002	Sheet of
File:	D:\CDDC\JPD\JPD-Logic.Ddb	Drawn By:

JPD-elec Control & Status Signals

DC-DC Group Name	DC-DC Type/Name	Control & Status Signals			
		Digital		Analog	
		Control (Rd/Wr)	Status (Rd Only)	Voltage Monitoring (Range: 0 ... Unom + 20%)	Current Monitoring (Range: 0 ... I _{max} + 30%)
Power Source for JMDC#0	+5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	-5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	+3.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
Power Source for JMDC#1	+5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	-5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	+3.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
Power Source for JMDC#2	+5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	-5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	+3.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
Power Source for JMDC#3	+5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	-5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	+3.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
Power Source for JPD-elec, USCMs, JHIF, and JLIF	+5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	-5.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF	PG#A PG#B	YES	YES
	- -	SSF_ON/OFF (for J422 only)	SSF_STATUS	YES	YES
Power Source for JT-Crate	+3.6V DC-DC#A DC-DC#B	ON/OFF ON/OFF SSF_ON/OFF[0..3]	PG#A PG#B SSF_STATUS[0..3]	YES	YES
JMDCs COLD_START	-	-	CSS[0..3]	-	-
Total:		35 (JPD-elec)	39 (JPD-elec)	16 (USCMs)	16 (USCMs)

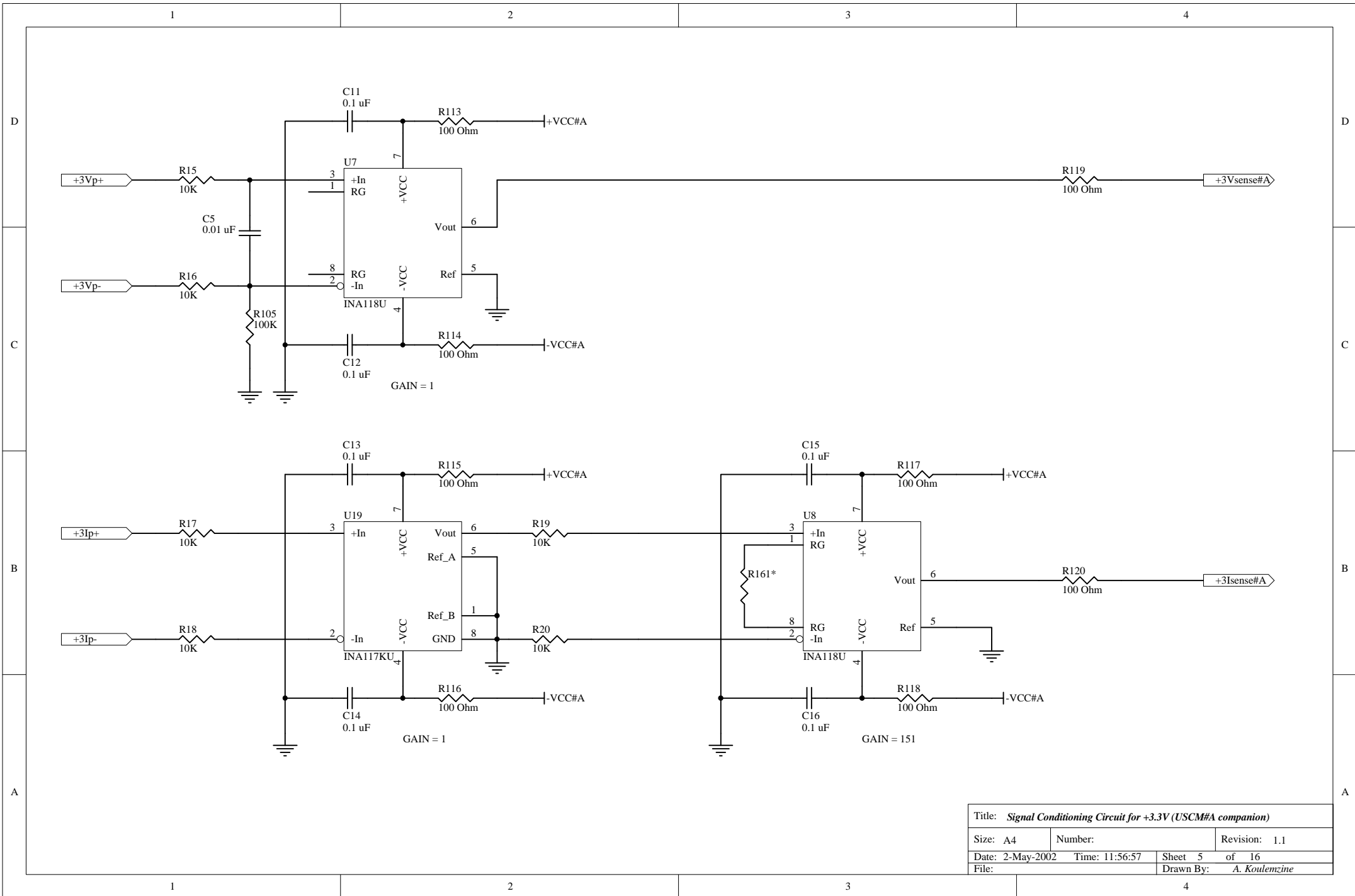


Title		
Signal Conditioning Circuit to USCMs Interconnection		
Size	Number	Revision
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File:	D:\CDDC\JPD\JPD-Logic.Ddb	Drawn By:



Note: "SCC" = Signal Conditioning Circuit
 SCC Set#A - SCC companion of USCM#A
 SCC Set#B - SCC companion of USCM#B

Title: Voltage and Current Sensors for sensing of JMDCx Power			
Size: A4	Number:	Revision: 1.1	
Date: 2-May-2002	Time: 11:50:08	Sheet 2	of 16
File:	Drawn By:		A. Koulemzine



Title: <i>Signal Conditioning Circuit for +3.3V (USCM#A companion)</i>		
Size: A4	Number:	Revision: 1.1
Date: 2-May-2002	Time: 11:56:57	Sheet 5 of 16
File:	Drawn By: <i>A. Koulemzine</i>	