NOAO

ENGINEERING CHANGE ORDER

BOARD NAME	LCB Mezzanine Board			ECO#	**TRNT-005**	DATE	16dec09
BRD SERL#	Start at 007	REV		ART#			
PN#		REV				REV	
ASBLY#	TRNT-EL-04-0003	REV	OD	PCB#	TRNT-EL-04-1003	REV	OD
BOM#		REV		SCH#	TRNT-EL-04-2003	REV	OD
COGNIZANT ENGNR				APPROVD			

REASON FOR MODIFICATION:

Circuit debug – to make circuit functional

DRAWINGS AFFECTED:	NEW REV
TRNT-EL-04-0003	A
TRNT-EL-04-1003	A
TRNT-EL-04-2003	A
TRNT-EL-04-3003	A
TRNT-EL-04-4003	A

DESCRIPTION OF MODIFICATION:

See schematic TRNT-EL-04-2003 rOE_pcm1_112309.pdf &/or .sch

The following changes have been made with respect to the original schematic:
1. Added 10 Ohm / 1uf RC network to U3 and U4 pin 1 (this is a mod from Dave).
2. Add a voltage divider stage for pin 6 on U3 and U4 (this mod from Dave).
3. Disable Tracking feature on U3 and U4 pin 7 (this mod from Dave).
4. Change of value for C37 and C39 (this mod from Dave).
5. Made C3, C4, C10, and C33 as DNF devices (this mod from Dave).
6. Change R24 value (this mod from Dave).
7. Change R3, R8, R35, R43, R68, R76, R94, R104, R114, and R116 values.
8. Add BAT54 protection diodes on all output rails.
9. Replaced VN1080 controller VDD resistor with a current source U12 / R130 / U32 / R131.
10. New values for VN180 controller network - R97, R29, R107, R134, R39, R38, C8, C134.
11. Added over voltage protection to VN180 controller - D30, D31, R144, R145.
12. Added fault detection circuit to VN180 controller - U33, U34, R132, R133.
13. Simplified the circuit around the Vn180 controller - Making it more straightforward and independent.
14. Changed VP300 controller device - extensively reworked and simplified circuitry.
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The following items are from the excel action item list and may contain some duplication with the above change list.

1	dms	D4, D5 pinout mapped incorrectly replace with corrected part, (part is obsolete) MAZS2000M (changed to BZX84C20)
2	dgs/dms	review package for the LT3080. (designed out)
3	dms	LT6105CMS8#PBF used on some of the first cut boards, make sure to order LT6105IMS8#PBF when ready for production.
4	dms	MAX4659EUA, no exposed pad under this package, change the pattern
5	dms	assembly drawing, do a side view to show connector orientation see item 14.
6	rg/dgs	Change the voltage divider ratio for VDD on U25 and U28 to provide more current flow - needed to get device to power on. Position R95 changed to current source, R97 to 47.5K, and R96 to 100 ohm.
7	dgs	Change R24 and R25 to 1.47K. This value gives the correct ratio for the VN180 current monitors.
8	rg/dgs	Add a 10 ohm / 1 uF RC network to the VEE input on the LT4220 devices (U3 & U4) as per the datasheet
9	dgs	Add a voltage divider and bypass capacitor to the ON- inputs of U3 and U4. In the resistor divider connect a 14.2K to VN80 and a 4.99K to GND. Add a 0.01 uF cap from ON- to GND (used 14.3K)
10	dgs	Disable the tracking feature of the LT4220 to get reliable switching of the V80 supplies. Tie pin 7 of U3 and U4 to GND.
11	dgs	Change the value of C37 and C39 to 0.022uF. This change reduces the delay time of the VN80 supply turn-on by increasing the ramp of the GATE- voltage.
12	dgs	Remove C3 and C4. These caps cause an undesirable delay in the VP80 turn-on time. (used 0603 to hold position, open)
13	dgs	Remove C10 and C33. These caps cause an undesirable delay in the VP180 turn-on time. (used 0603 to hold position, open)
14	dms 8/26/09	LS2 connector, graphic depicting orientation of socket /pin in silkscreen ___ _S_| | P
15	dms 11/19/09	Part number in bom correction UCC2913D should be UCC3913D