QUICKEVAL PROCEDURE

Demonstration circuit 458 is configured to be a part of the LTC QuickEval™ system for quick and easy I²C™ control. The QuickEval software is downloaded from the Linear Technology website. After installing the software, it is always best to run the update periodically.

Connect the USB controller board, DC590A, to a computer and open the QuickEval software as shown in Figure 2. Through a 14-pin ribbon cable connect the DC458 to the controller board and the LTC4240 interface software will be brought up. Refer to Figure 3 for the following interface description.

1. An I²C address byte needs to be selected to match that of the LTC4240 so the host can communicate with it. Select a Write Address from the list or simply click on Find Address to cycle through the possible addresses for the LTC4240 and show which addresses responded with an acknowledge. If no address is found, the selected address will be set 00h. Check the connections and setup and try again.

2. The Command Byte field on the QuickEval Interface menu is the write register of the LTC4240. To set a bit to 1, select the appropriate box. For example, selecting C5 will only send data byte 20h. Then checking C4 will send data byte 30h. Unchecking C5 will send data byte 10h.

3. The Status field displays the read register of the LTC4240. Click on Single Refresh to do a single read from the LTC4240, or check Continuous Read to poll the LTC4240 and uncheck to halt the poll. The poll is set to read every 500ms.

4. The Quick Read field shows the status of the Red Fault# LED and Green HEALTHY# LED. The Expansion Configuration is given by PRSNT1,2# bits. The FAULTCODE0,1 bits encode which supply has caused a fault.

Note: If the DC458 is disconnected or a communications error has occurred, the LTC4240 software will close and return to main QuickEval software.

Additional help is in the toolbar, which includes a link to the datasheet and this QuickStart guide.

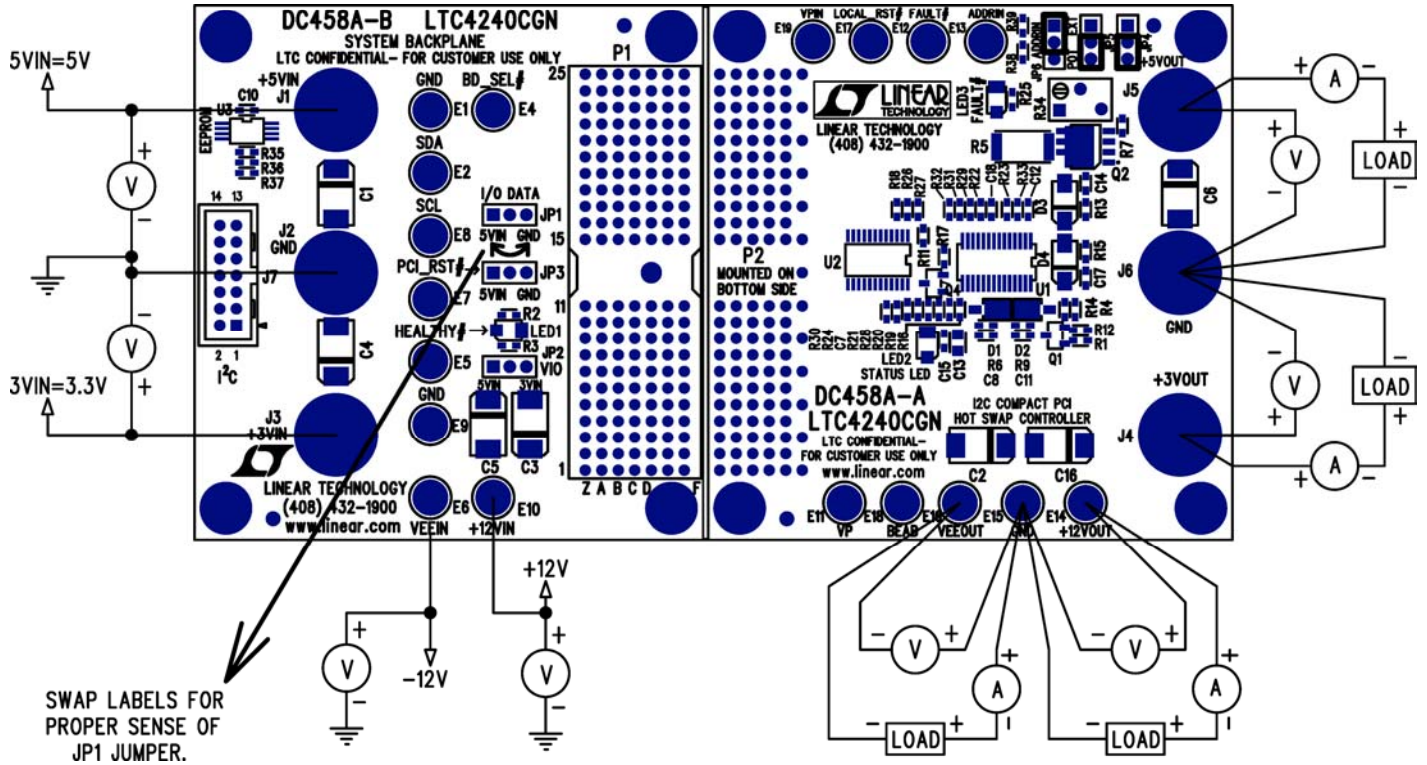**Design files for this circuit board are available. Call the LTC factory.**

Figure 1. Proper Measurement Equipment Setup
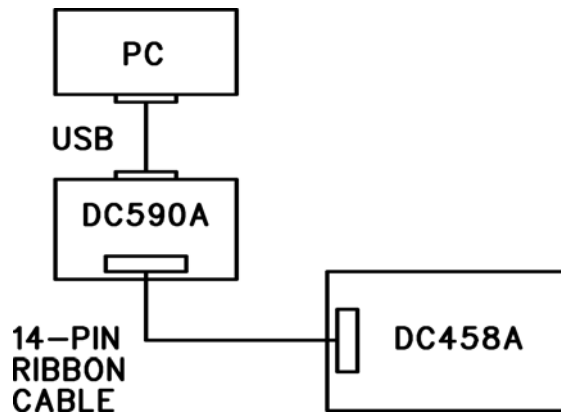
Figure 2. QuickEval Setup

LTC4240

File   View   Help

Tx Address (hex)
[Find Address]   [7E ▼]
1)   Addresses Found: 7Eh

Command Byte
2)
☐ C5 - Ignore VEEOUT faults
☐ C4 - Ignore 12VOUT faults
☐ C3 - Set /RESETOUT
☐ C2 - Turn off OFF/ /ON
☑ C1 - Turn on LED

Status
3)
STATUS Byte - 19h
S7 - PRSNT2# pin: 0
S6 - PRSNT1# pin: 0
S5 - /PWRGD pin: 0
S4 - /RESETOUT pin: 1
S3 - /RESETIN pin: 1
S2 - FAULTCODE1: 0
S1 - FAULTCODE0: 0
S0 - /FAULT pin: 1
[Single Refresh]
☑ Continuous Read

Quick Read
4)
HEALTHY# 🟢
FAULT# ☐

Expansion Configuration:
Plug-in board present,
minimum power consumption

Supply Causing Fault:
None

USB: [LTC4240,Cls,[⟷]

Figure 3. DC458 QuickEval Interface

HOP SWAP CONTROLLER

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS, 0603.
2. INSTALL SHUNTS ON JP1-JP6 PIN 1 AND 2.
3. P2 IS MOUNTED ON SOLDER SIDE.
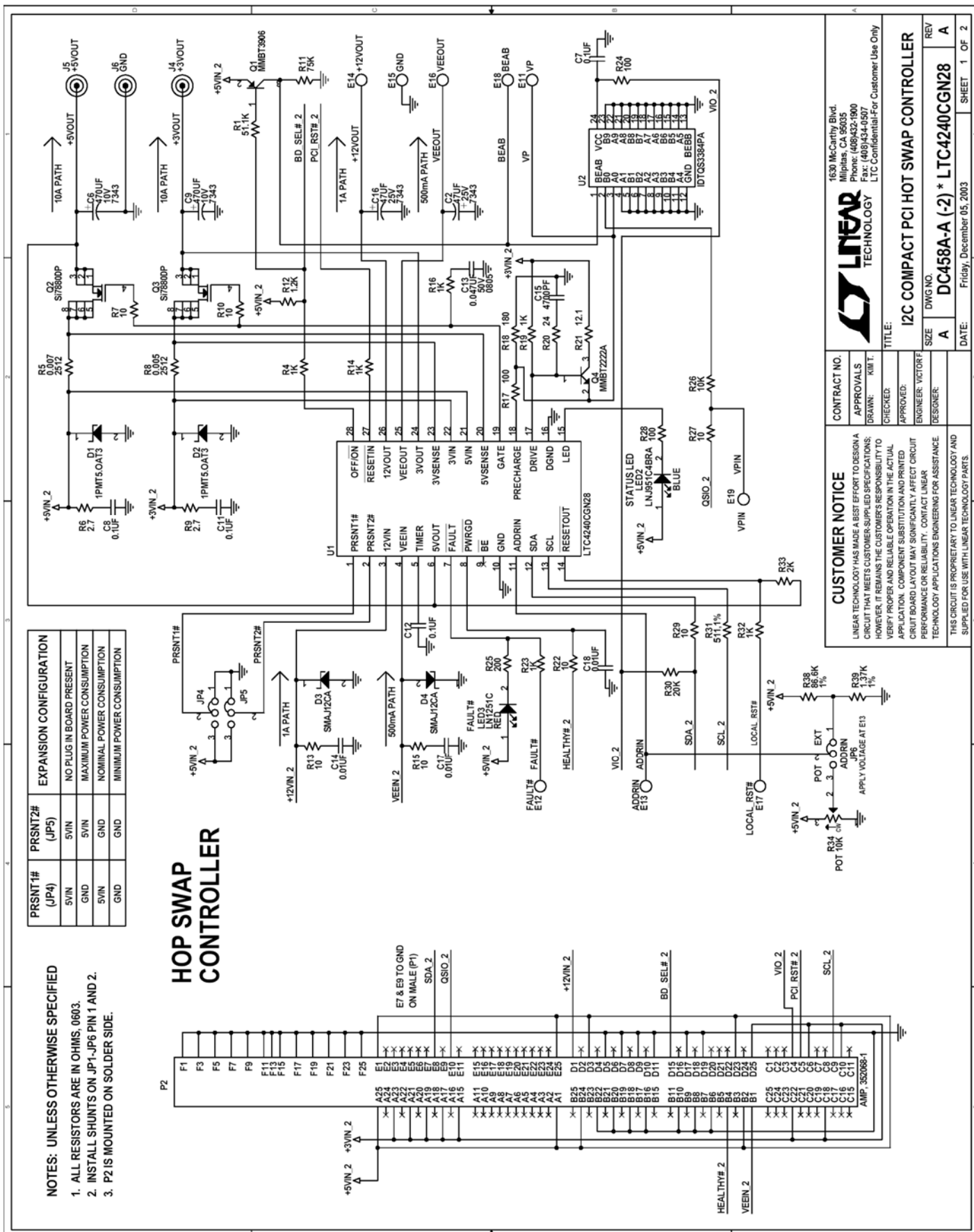
PRSNT1# (JP4)	PRSNT2# (JP5)	EXPANSION CONFIGURATION
5VIN	5VIN	NO PLUG IN BOARD PRESENT
GND	5VIN	MAXIMUM POWER CONSUMPTION
5VIN	GND	NOMINAL POWER CONSUMPTION
GND	GND	MINIMUM POWER CONSUMPTION

U1 LTC4240CGN28

Pin list: 1 PRSNT1#, 2 PRSNT2#, 3 12VIN, 4 VEEIN, 5 TIMER, 6 5VOUT, 7 FAULT, 8 PWRGD, 9 BE, 10 GND, 11 ADDRIN, 12 SDA, 13 SCL, 14 RESETOUT, 15 LED, 16 DGND, 17 DRIVE, 18 PRECHARGE, 19 GATE, 20 5VSENSE, 21 5VIN, 22 3VIN, 23 3VSENSE, 24 3VOUT, 25 VEEOUT, 26 12VOUT, 27 RESETIN, 28 OFF/ON

U2 IDTQS3384PA — BEAB, VCC, B9, A9, B8, A8, B7, A7, B6, A6, B5, A5, GND, BEBB, A1, B1, A2, B2, A3, B3, A4, B4, A0, B0

Connector P2 AMP_352068-1

J5 +5VOUT, J6 GND, J4 +3VOUT
E14 +12VOUT, E15 GND, E16 VEEOUT, E18 BEAB, E11 VP

Q1 MMBT3906, Q2 Si7880DP, Q3 Si7880DP, Q4 MMBT2222A
R11 75K, R1 51.1K, R5 0.007 2512, R8 0.005 2512

C6 470UF 10V 7343, C9 470UF 10V 7343, C16 47UF 25V 7343, C2 47UF 25V 7343

D1 1PMT5.0AT3, D2 1PMT5.0AT3, D3 SMAJ12CA, D4 SMAJ12CA

STATUS LED LED2 LN.J951C4BRA BLUE
FAULT# LED3 LN1251C RED

10A PATH, 1A PATH, 500mA PATH

CUSTOMER NOTICE

LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.
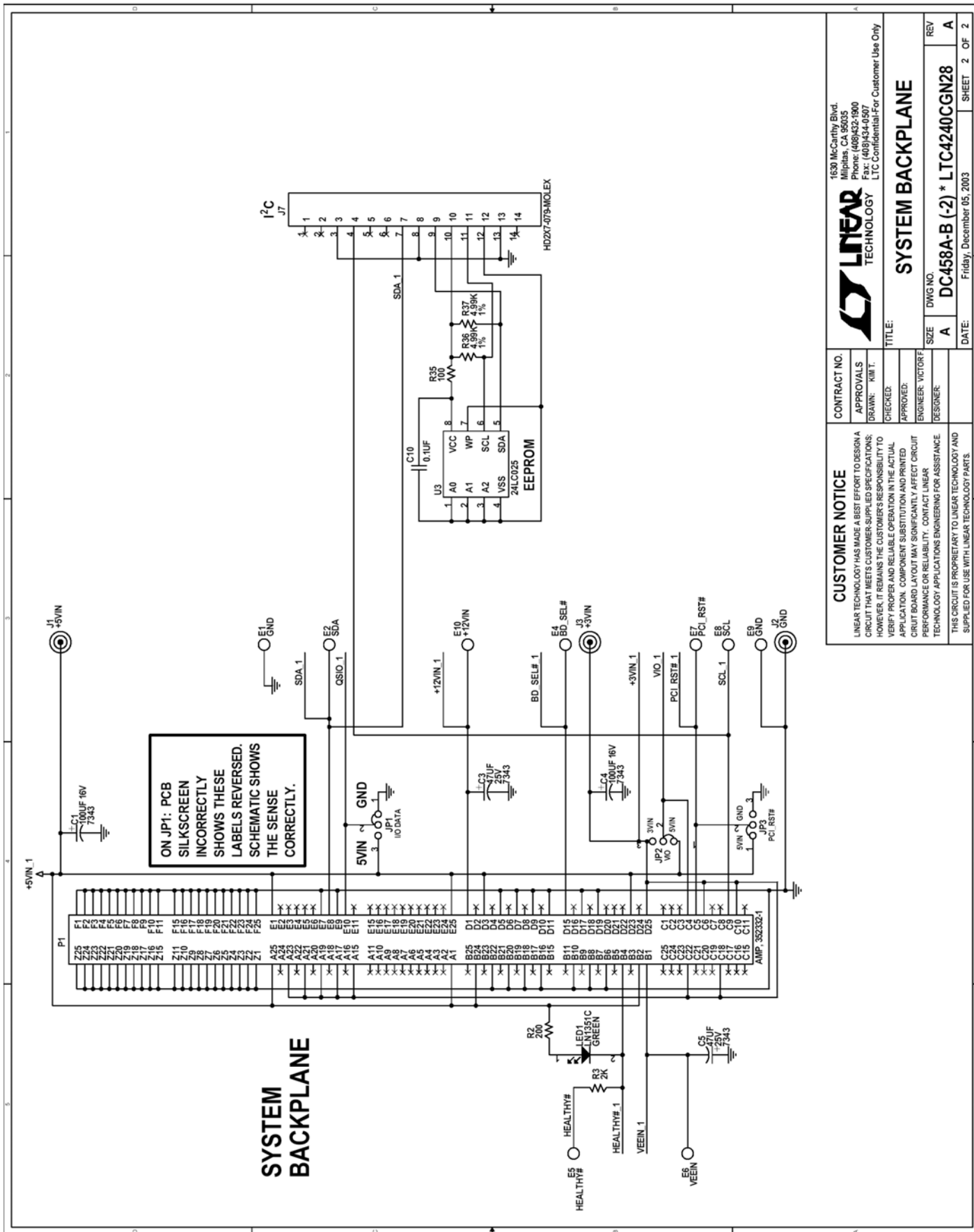
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.

SYSTEM BACKPLANE

ON JP1: PCB
SILKSCREEN
INCORRECTLY
SHOWS THESE
LABELS REVERSED.
SCHEMATIC SHOWS
THE SENSE
CORRECTLY.

1630 McCarthy Blvd.
Milpitas, CA 95035
Phone: (408)432-1900
Fax: (408)434-0507
LTC Confidential-For Customer Use Only

SYSTEM BACKPLANE

CONTRACT NO.
APPROVALS
DRAWN: KIM T.
CHECKED:
APPROVED:
ENGINEER: VICTOR F.
DESIGNER:
TITLE:

DWG NO.
DC458A-B (-2) * LTC4240CGN28

SIZE A
REV A

DATE: Friday, December 05, 2003
SHEET 2 OF 2

I^2C
J7
HD2X7-079-MOLEX

SDA_1

R37 4.99K 1%
R36 4.99K 1%
R35 100

C10 0.1UF

U3
24LC025
EEPROM
A0 VCC
A1 WP
A2 SCL
VSS SDA

E1 GND
E2 SDA
SDA_1
QSIO_1
E10 +12VIN
+12VIN_1
E4 BD_SEL#
BD_SEL#_1
J3 +3VIN
+3VIN_1
VIO_1
E7 PCI_RST#
PCI RST#_1
E8 SCL
SCL_1
E9 GND
J2 GND

J1 +5VIN
C1 100UF 16V 7343
+5VIN_1

5VIN GND
JP1 I/O DATA

C3 47UF 25V 7343

C4 100UF 16V 7343

3VIN
JP2 VIO 5VIN

5VIN GND
JP3 PCI_RST#

P1
AMP 352332-1

R2 200
LED1 1N351C GREEN
R3 2K
E5 HEALTHY#
HEALTHY#_1

C5 47UF 25V 7343
VEEIN_1
E6 VEEIN

SYSTEM BACKPLANE

LINEAR TECHNOLOGY

Linear Technology Corporation

LTC4240CGN28

I2C COMPACT PCI HOT SWAP CONTROLLER

ENG: VICTOR FLEURY

BILL OF MATERIALS
DC458A-A/-B
QTY- 125

Item	Qty	Reference	Part Description	Manufacture / Part #
				NUMBER OF BOARDS =
1	2	C1,C4	CAP,TANT TPS 100UF 16V,7343	AVX, TPSD107M016S0125
2	4	C2,C3,C5,C16	CAP,TANT TPS 47UF 25V,7343	AVX, TPSD476M025S0250
3	2	C6,C9	CAP,TANT TPS 470UF 10V, 7343	AVX, TPSE477M010R0050
4	5	C7,C8,C10,C11,C12	CAP CER X7R 0.1UF 16V,0603	TAIYO YUDEN, EMK107BJ104MA
5	1	C13	CAP, CER Z5U 0.047UF 50V	AVX, 08055E473KAT2A
6	3	C14,C17,C18	CAP, CER X7R 0.01UF 25V	AVX, 06033C103MAT1A
7	1	C15	CAP, CER X7R 4700PF 25V	AVX, 06033C472MAT1A
8	2	D1,D2	DIODE, 1PMT5.OAT3,POWERMITE	ON SEMI., 1PMT5.OAT3
9	2	D3,D4	DIODE, SMAJ12CA, SMA-DIODE	DIODES, SMAJ12CA
10	19	E1-E19	TP, TURRET, .094"	MILL-MAX, 2501-2
11	6	JP1-JP6	HEADER, 3PIN 1 ROW .079CC	COMM-CON, 2802S-03-G1
12	6	SHUNTS FOR JP1-JP6	SHUNT, 0.079" CENTER	COMM-CON, CCIJ2MM-138G
13	6	J1-J6	JACK, BANANA,KEY-575	KEYSTONE, 575-4
14	1	J7	HEADER, 2X7PIN, 0.079CC	MOLEX, 87331-1420
15	1	LED1	LED,GREEN,LED-LN1351C-GREEN	PANASONIC, LN1351C-(TR)
16	1	LED2	LED,BLUE,LNJ951C4BRA	PANASONIC, LNJ951C4BRA
17	1	LED3	LED,RED,LED-LN1251C-RED	PANASONIC, LN1251C-(TR)
18	1	P1	CON., COMPACTPCI MALW	AMP, 352332-1
19	1	P2	CON., COMPACTPCI FEMALE	AMP, 352068-1
20	1	Q1	TRANS, MMBT3906, SOT23	DIODES INC., MMBT3906
21	2	Q2,Q3	MOSFET, HEXFET POWER, SO8-POWERPAK	SILICONIX, Si7880DP
22	1	Q4	TRANS, MMBT2222A, SOT23	DIODES INC., MMBT2222A
23	1	R1	RES, CHIP 51.1K 1/16W 1%,0603	AAC,CR16-5112FM
24	2	R2,R25	RES, CHIP 200 1/16W 5%,0603	AAC,CR16-201JM
25	2	R3,R33	RES, CHIP 2K 1/16W 5%,0603	AAC, CR16-202JM
26	6	R4,R14,R16,R19,R23,R32	RES, CHIP 1K 1/16W 5%,0603	AAC, CR16-102JM
27	1	R5	RES, CHIP 0.007 1W 1%,2512	PANASONIC, ERJM1WSF7M0U
28	2	R6,R9	RES, CHIP 2.7 1/16W 5%,0603	AAC,CR16-2R7JM
29	7	R7,R10,R13,R15,R22,R27,R29	RES, CHIP 10 1/16W 5%,0603	AAC,CR16-100JM
30	1	R8	RES, CHIP 0.005 1W 1%,2512	PANASONIC, ERJM1WSF5M0U
31	1	R11	RES, CHIP 75K 1/16W 5%,0603	AAC, CR16-753JM
32	1	R12	RES, CHIP 1.2K 1/16W 5%,0603	AAC, CR16-122JM
33	4	R17,R24,R28,R35	RES, CHIP 100 1/16W 5%,0603	AAC,CR16-101JM
34	1	R18	RES, CHIP 180 1/16W 5%,0603	AAC,CR16-181JM

LTC4240CGN28

I2C COMPACT PCI HOT SWAP CONTROLLER
ENG: VICTOR FLEURY

Item	Qty	Reference	Part Description	Manufacture / Part #
				NUMBER OF BOARDS =
35	1	R20	RES, CHIP 24 1/16W 5%,0603	AAC,CR16-240JM
36	1	R21	RES, CHIP 12.1 1/16W 1%,0603	AAC,CR16-12R1FM
37	1	R26	RES, CHIP 10K 1/16W 5%,0603	AAC,CR16-103JM
38	1	R30	RES, CHIP 20K 1/16W 5%,0603	AAC,CR16-203JM
39	1	R31	RES, CHIP 511 1/16W 1%,0603	AAC,CR16-5110FM
40	1	R34	RES, POT 10K 1/16W 5%	BOURNS, 3266W-1-103
41	2	R36,R37	RES., CHIP 4.99K 1/16W 1%,0603	AAC, CR16-4991FM
42	1	R38	RES., CHIP 86.6K 1/16W 1%,0603	AAC, CR16-8662FM
43	1	R39	RES., CHIP 1.37K 1/16W 1%,0603	AAC, CR16-1371FM
44	1	U1	IC., LTC4240CGN28,SSOP28GN	LINEAR TECH., LTC4240CGN28
45	1	U2	IC., IDTQS3384PA, TSSOP24	IDT., IDTQS3384PA
46	1	U3	I.C., 24LC025, TSSOP8	MICROCHIP, 24LC025
47	8	MTGS AT 4 CORNERS	SCREW, #4-40, 1/4"	ANY
48	8	MTGS AT 4 CORNERS	STANDOFF, NYLON HEX #4-40 1/2"	MICRO PLASTICS 14HTSP003
		NOTES: UNLESS OTHERWISE SPECIFIED		
		1. ALL RESISTORS ARE IN OHMS.		
		2. INSTALL 4 STAND OFF COMPONENTS AT 4 CONERS OF EACH BOARD AND ON BOTTOM SIDE.		
		3. INSTALL SHUNTS ON JP1-JP6 PIN 1 AND 2.		
		4. INSTALL P2 ON SOLDER SIDE (BOTTOM SIDE)		