

AN10026 – LGA80D-00DADJJ 6 Phases Rework Instruction

DC-DC

200 Watts
Non Isolated DCDC
Converter

Model #

LGA80D-Eval-Kit for
LGA80D-00DADJJ

Application Overview:

- To generate 6 phases for 240A



Description

LGA80D evaluation kit gives you the ability to connect the demonstration board to a USB socket on a PC, with the PMbus interface, dongle and cable provided in the kit and control and monitor the LGA80D units as they would be used in an application.

The objective of this application test note is to describe how to connect 2 evaluation boards together with all of the associated modification that are required in order to create a 3-module combination, 6 Phase, 240A output.

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Demo Board Rework Procedure

Prepared two pcs demo board that called board A and board B. Choosing board A two modules and board B one module(the single output one) as 6 phases application, choosing two outputs module of board A is master module, the rest are slave modules. We rework on board A and board B individually, then rework for two boards combined together.

Board A rework list:

Short Vin1 and Vin2 together: Short "OPEN103" via soldering

Short Vout1, Vout2, Vout3 together: short "OPEN1101", "OPEN1102", "OPEN101", "OPEN102" via soldering

Cut single output module remote sense trace: remove R1401, R1402

Short two modules signals together: short J1206 pin1-2, pin3-4, pin5-6, pin7-8, pin9-10 via soldering on PCB bottom side

Remove SYNC setting: remove R216, R1214

Short enable together: short J203 pin 1-3-5 via soldering on PCB bottom side, add jumper on EN3 of J203

Short master module VS pin together: remove R401, R402, add R305= R405= 0ohm

Board B rework list:

Cut single output module remote sense trace: remove R1401, R1402

Remove SYNC setting: remove R1214

Change address: change R1211 to 68.1k ohm

Two boards combined rework list:

Short two boards signals together: short board A J1206 to board B J1206 together via jumper wires, pin1-pin1, pin3-pin3, pin5-pin5, pin7-pin7, pin9-pin9

Short two boards Vin together: short board A Vin1/Vin2 to board B Vin2 via wires

Short two board Vin_RTN together: short board A Vin1/Vin2_rtn to board B Vin2_rtn via wires

Short two boards output together: short board A Vout1/Vout2/Vout3 to board B Vout3 via copper band

Short two boards output GND together: short GND via copper band

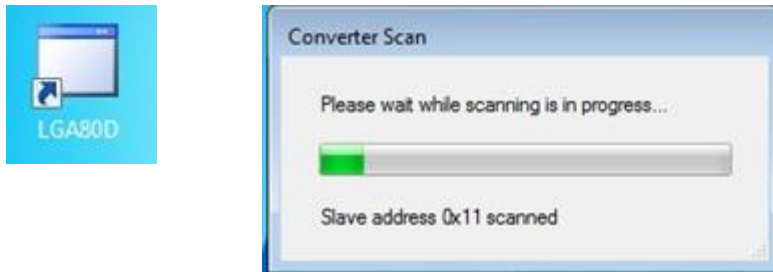
Short I2C signal together: short board A J204 to board B J204 via jumper wires, pin2-pin2, pin3-pin3, pin4-pin4

Select 1.0V output: Turn on SW601, SW631, SW1601 to select 1.0V output

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LGA80D GUI configuration Procedure

1. Connect 6-phase demo board to PC via our USB to I2C adapter(73-769-001).
2. Turn off enable switch S201 of both board A and B.
3. Apply input voltage to the demo board, and then open LGA80D GUI, it will show converter scan as below,



4. In GUI interface, click “settings”, select each module and click “restore” one module by one module, to put each module in factory mode.

The screenshot shows the 'Settings' tab of the LGA80D GUI. On the left, a schematic shows three converter modules: 0x55, 0x54, and 0x56. Module 0x55 is highlighted with a green box. To its right, a detailed view of module 0x55 is shown, displaying parameters: Address: 0x55, Temperature: 23.63 °C, Efficiency: 0.00 %, and Dissipation: 1.54 W. Below this is a table of Fault and Warning Levels.

Name	Fault Level		Warning Level		
	Present Value	Edit Value	Present Value	Edit Value	
I/P UVLO	6.13	6.13	6.74	6.74	●
I/P OVLO	14.50	14.50	13.50	13.50	●
OTP	125.00	125.0	110.00	110.0	●
O/P OVPA	1.10	1.10	N/A	N/A	●
O/P OVPB	1.10	1.10	N/A	N/A	●
O/P OCPA	45.00	45.00	N/A	N/A	●
O/P OCPB	45.00	45.00	N/A	NA	●

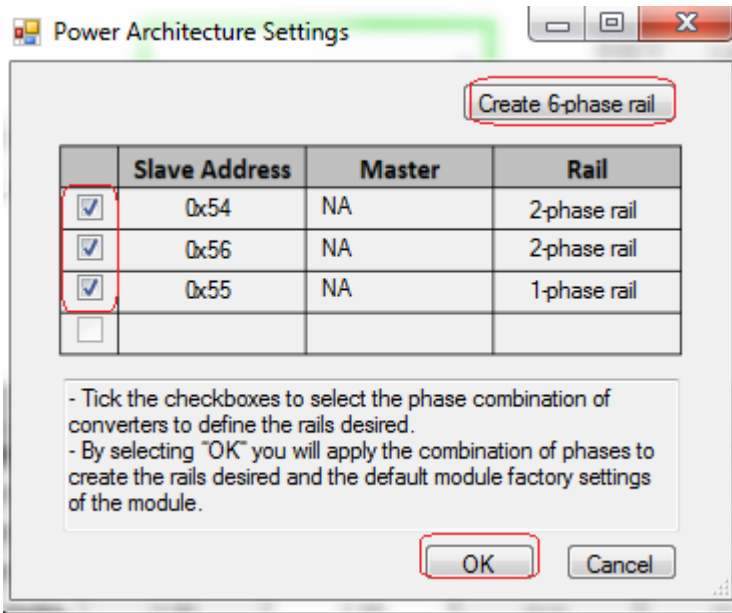
At the bottom of the interface, there are four buttons: 'Export', 'Fault Reset', 'Restore', and 'Set'. The 'Restore' button is highlighted with a red box.

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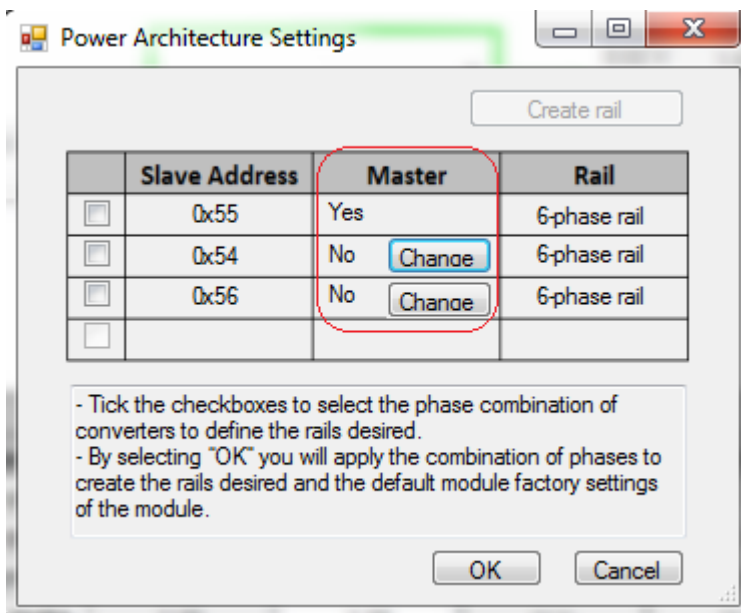
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5. Click “Architecture Settings” . Tick 3 modules in the window, click “create 6-pahse rail” .

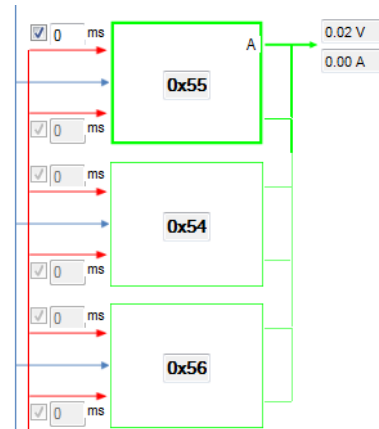
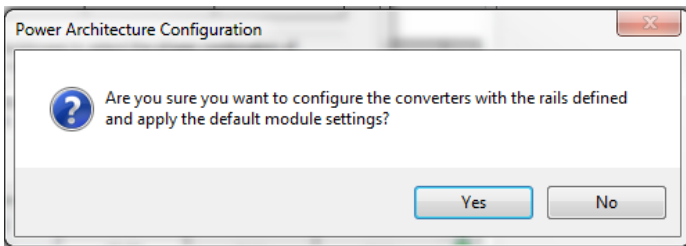


6. Click “change” to set 0x55 as master and then click “ok”



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7. Click "yes" to finish the settings. Wait a few seconds, the 6 phase outputs will combine to one output.



8. Click "Monitor", "change" to enable the output voltage via GUI, click the power button to enable the output voltage.

Time	Address	Error Type	Error Details

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