ispMACH4000Z Demo Board

Demo Board ispMACH4000Z Area

J5=Iccio Header

2 ½ Digit LCD

J4=Icc Header

Pull up/down 805 pads

J12=IO header

ispMACH4032Z device

Pull up/down 805 pads

J99=IO header

Pull up/down 805 pads

Reset Button

Proto IOs
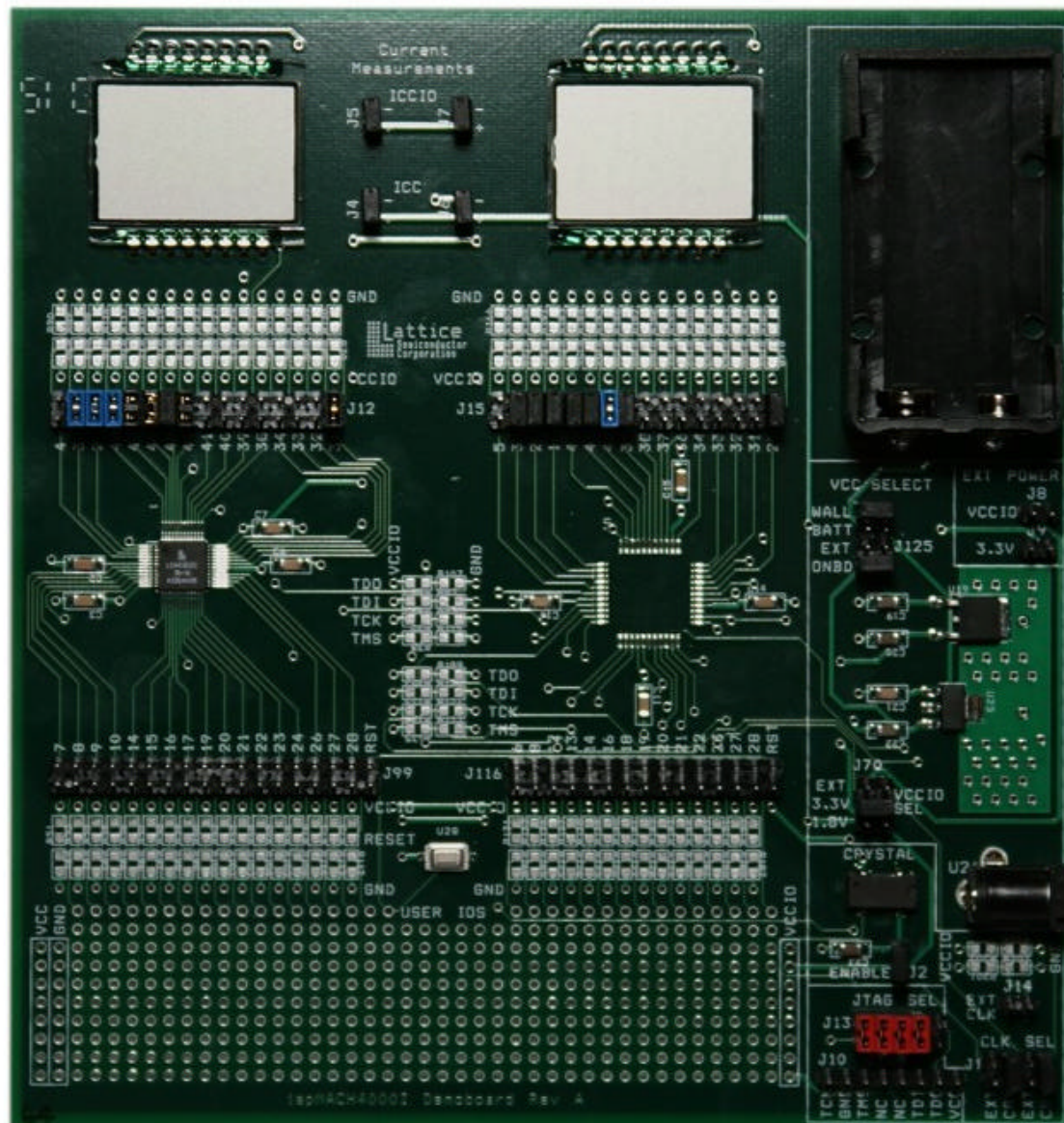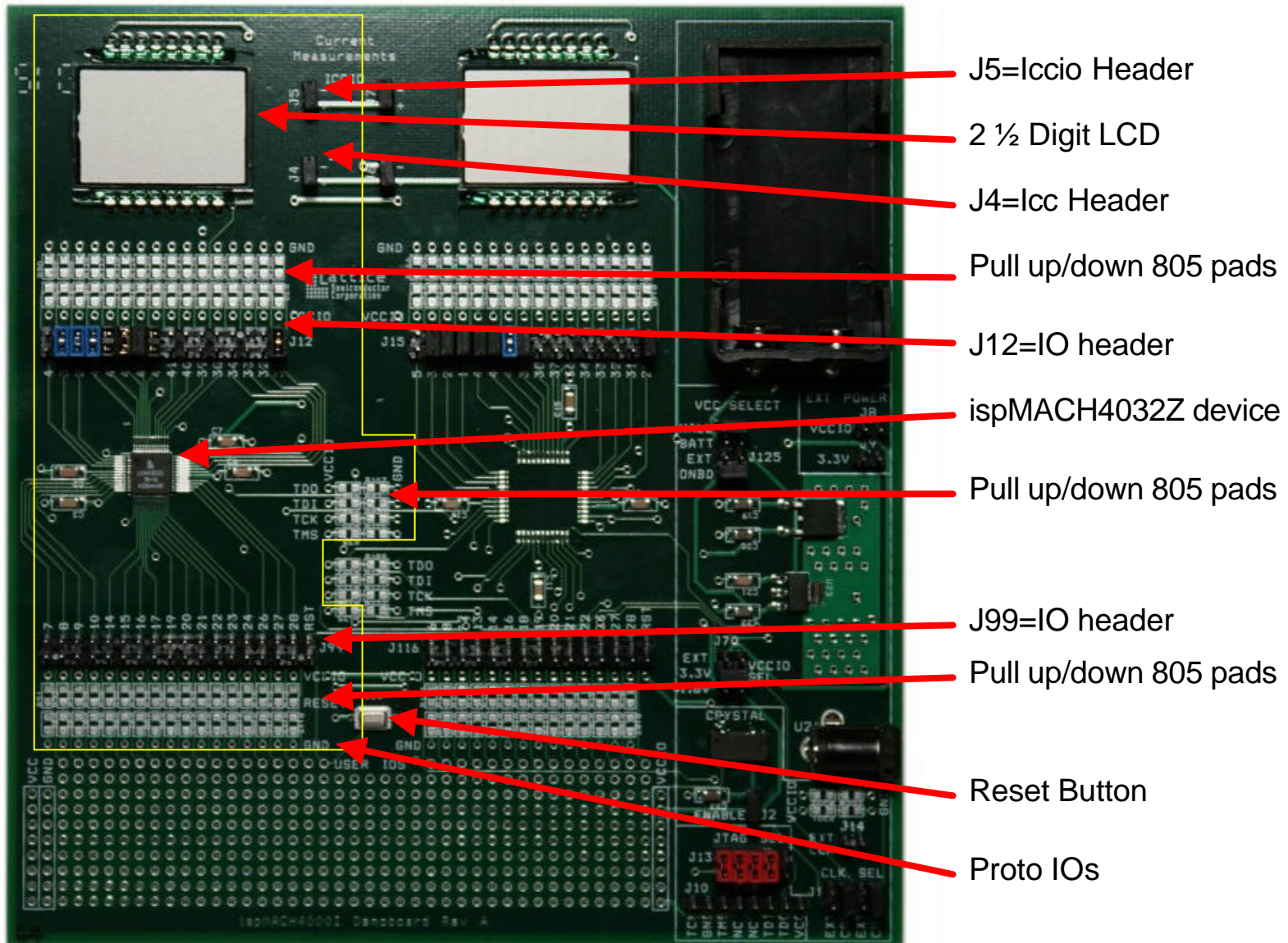
Demo Board ispMACH4000Z Area Notes

- Current of the ispMACH4000Z device can be measured by placing a multi-meter in the path of the jumpers J4 (Icc), J5 (Iccio).
- You supply an external Vcc and Vccio for the device by connecting power to J4 (Vcc), J5 (Vccio).
- The 2 ½ Digit LCD is connected to the IOs of the ispMACH4000Z device with the shorting jumpers on J12.
- The pull up/down 805 pads are connected to all IOs of the device. The pads are intended to give the user the option of placing pull up/down resisters on the IOs.
- IOs of the ispMACH4000Z can be accessed through jumpers J12 or J99. The corresponding device pin numbers are marked on the board.
- J99 is also used to connect some of the ispMACH4000Z IOs to the proto area using shorting jumpers.
- The Reset Button is connected to the Global Reset of the ispMACH4000Z on pin 42

Demo Board ispMACH4000Z Area Notes Continued

- Just some notes on the LCD:
  - The LCD requires 3.3V signals
  - A 60 Hz signal in phase with the common pin disables a segment
  - A 60 Hz signal out of phase with the common pin highlights a segment.
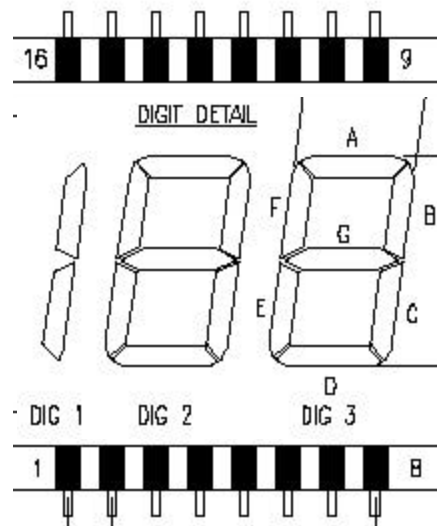
ispMACH4000Z Pin Number	LCD Pin Number	LCD Segment Number
4	1	1BC
3	2	3F
2	3	3G
48	4	3E
47	5	3D
46	6	3C
45	7	3B
44	8	3A
41	9	2C
40	10	2B
39	11	2A
38	12	2F
34	13	2G
33	14	2E
32	15	2D
31	16	COM

Demo Board Power Options

External Device Vcc and Vccio

9V Battery

J8=External Vccio

J9=External 3.3V Source

J125=Vcc Select

J70=Vccio Select

5V Wall Jack

Demo Board Power Options Notes

- The demo board has a variety of power options which include:
  - The 5V Wall Jack wall jack is the same one which comes with the ispXPGA and ispXPLD demo boards. To select this option short jumper J125 Wall and ONBD.
  - 9 V Battery. To select this option short jumper J125 BATT and ONBD.
  - The board can be powered using an External 3.3V Source connected to J9. To select this option short jumper J125 EXT.
- The demo boards Vccio level can be set using jumper J70 by shorting to 3.3V, 1.8V or EXT (which selects an external Vccio through jumper J8)
- Users can provide external Vcc and Vccio for each device through the following jumpers:
  - ispMACH 4000Z J4=Vcc, J5=Vccio

Demo Board Clock Options

32 KHz Oscillator

J2=Oscillator Enable

Pull up/down 805 pads

J14=External Clk

J1=Clock Select

Demo Board Clock Options Notes

- J1 selects the clock source by shorting EXT (selects the External source provided on J14), CRY (selects the output of the 32 KHz Oscillator). There are two EXT, CRY selections the one on the left is for GCLK1 and the one on the right GCLK2.
    - For the ispMACH4000Z GCLK1 is connected to pin 43 and GCLK2 is connected to pin 18
- When the jumper J2 is shorted it provides power to the Oscillator enabling it.
- The pull up/down 805 pads are connected to the 32 KHz Oscillator and the External Clock J14. The pads are intended to give the user the option of placing pull up/down resisters on the clock source.

Demo Board Programming Options

J13=JTAG select
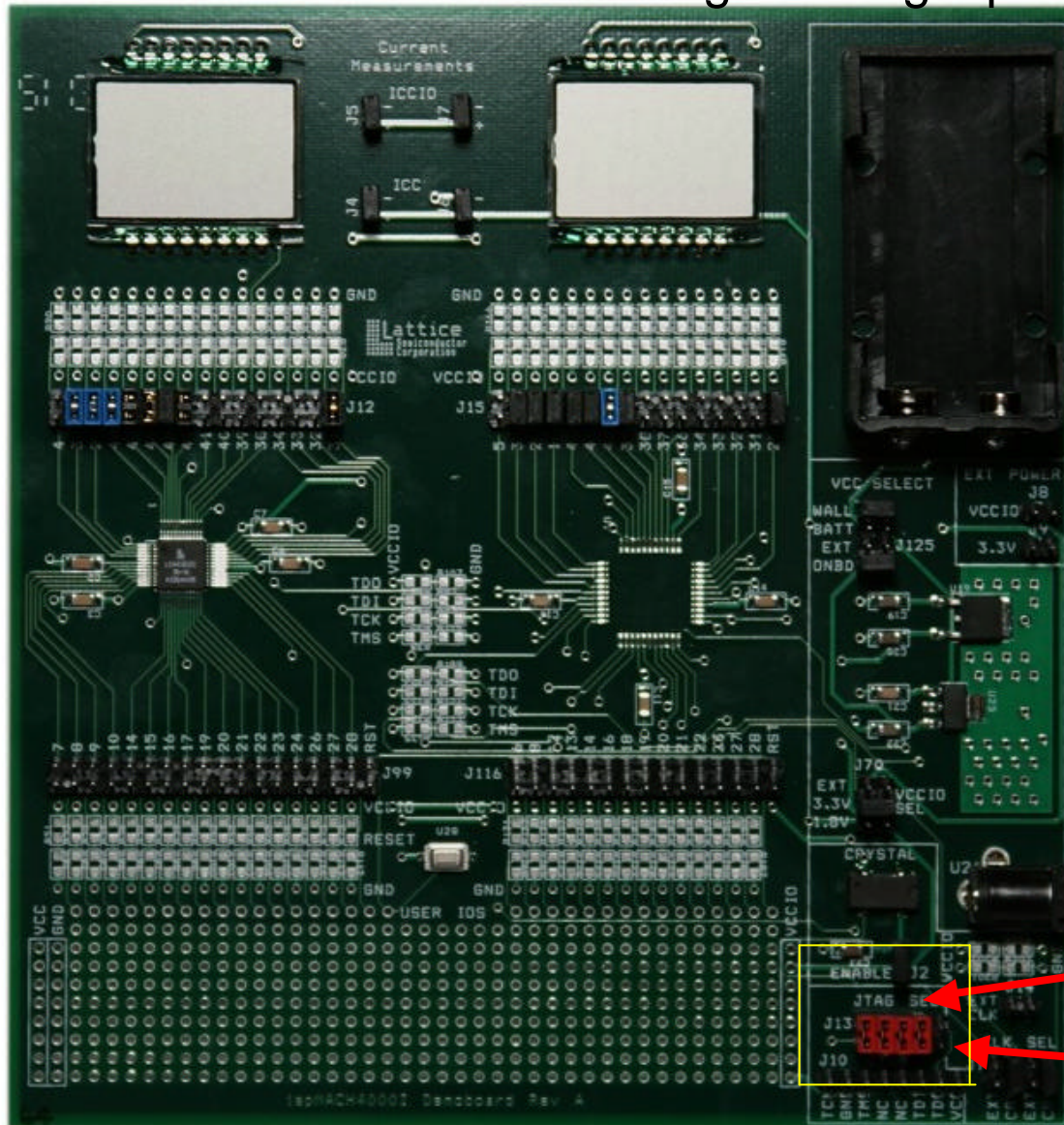
J10=1x8 JTAG Header

Demo Board Programming Options

- Jumper J10 is the connection for the standard 1x8 JTAG programming header.
- Jumper J13 selects the programming which devices are in the programming chain its configurations are (Position numbering is from left to right):
  - The ispMACH4000Z device (Short position 5).

Demo Board Proto Area
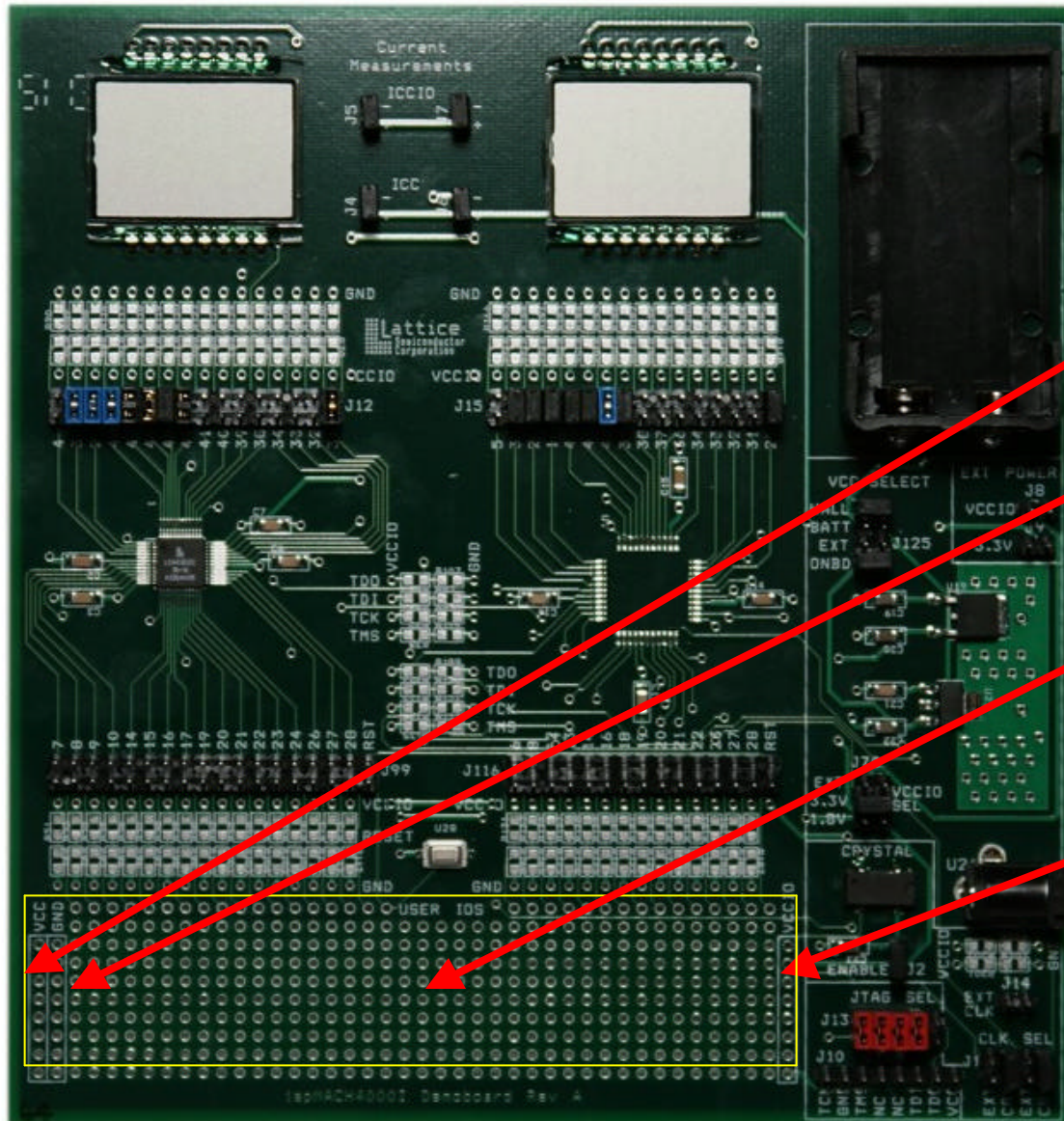
Vcc Strip

GND Strip

Proto Area

Vccio Strip

Demo Board Proto Area

- A proto area is provided for users it includes:
  - Vcc strip which is 1.8V
  - Vccio strip which is connected to the Vccio value the user selected
  - GND strip