Personal Evaluation Kit E.I.615 – Description and Adaptations requirement
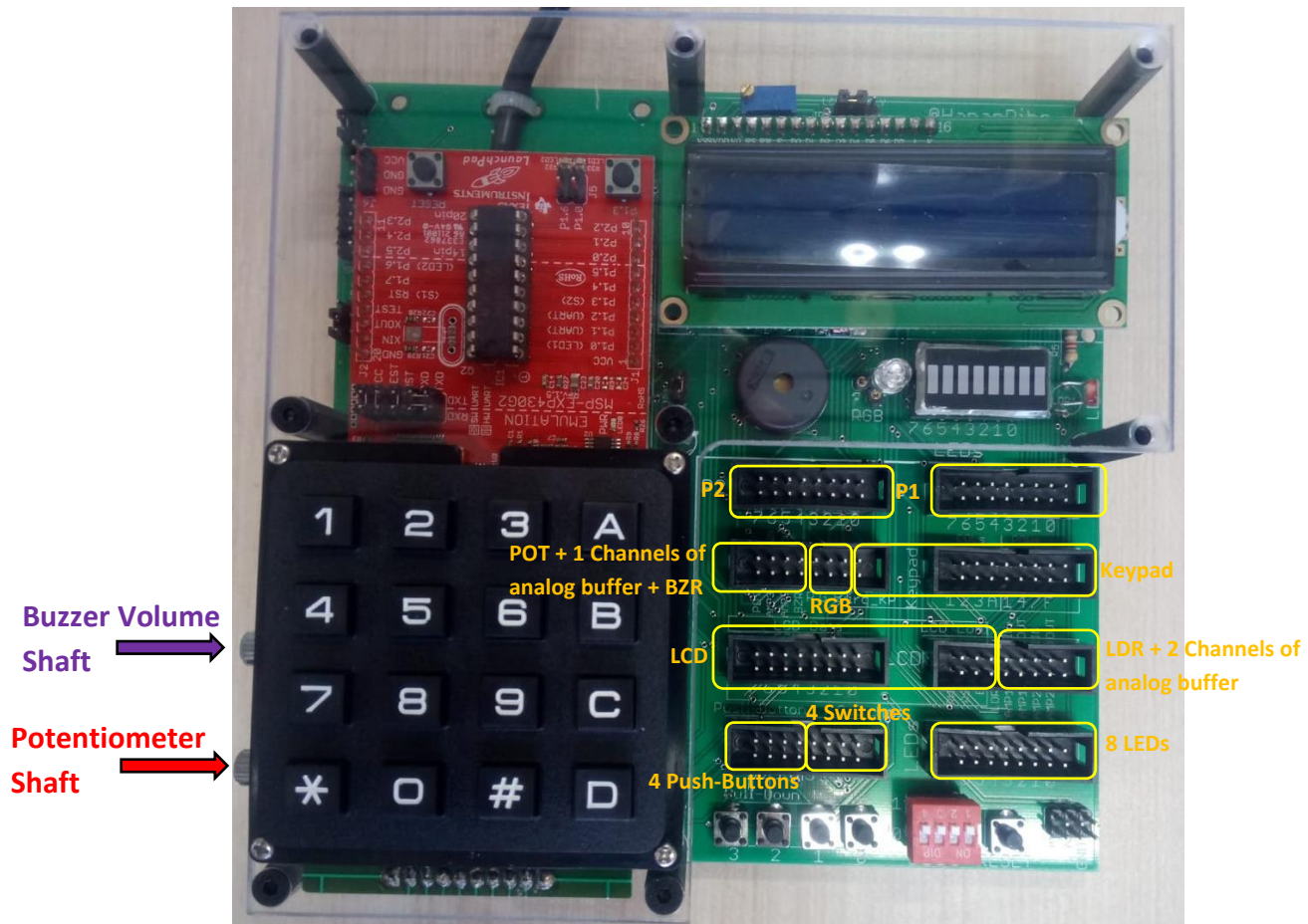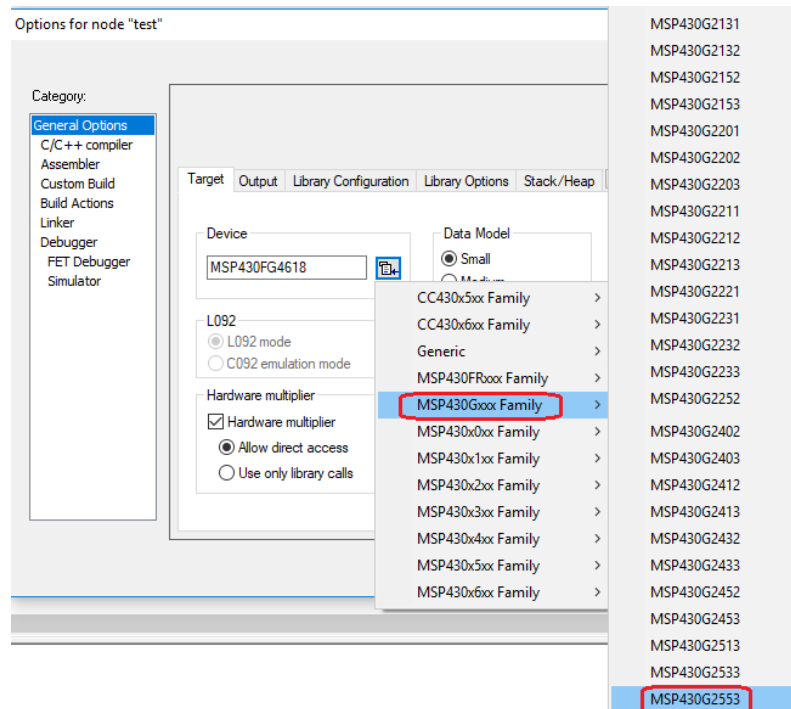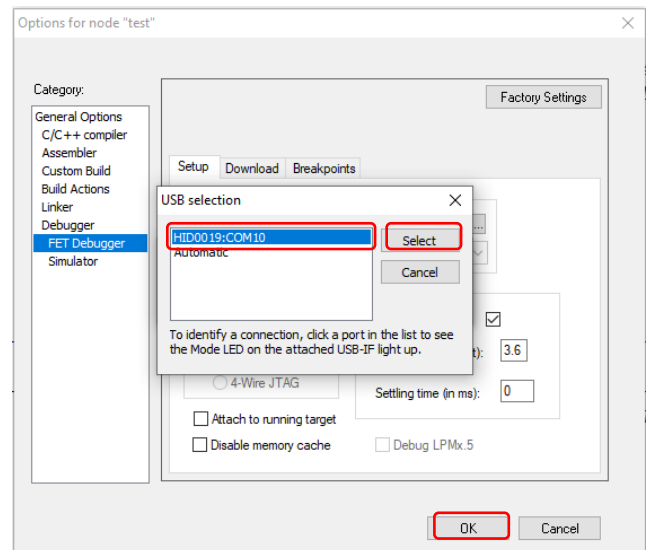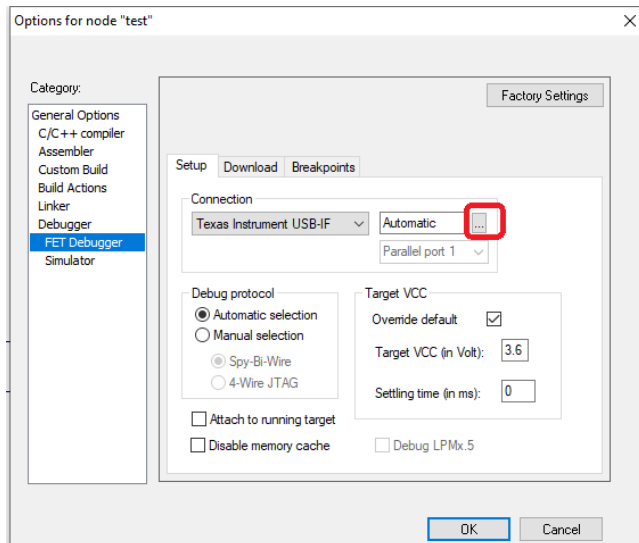
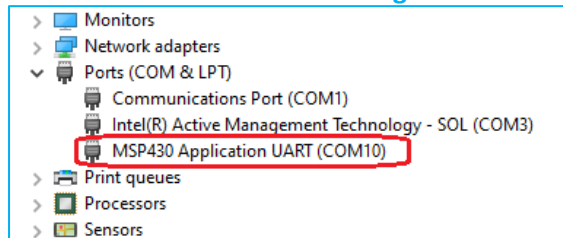## 1. Hardware Interface:

2. Serial Number definition in IAR IDE of the suited MCU:

Find it under device manager

> 🖥 Monitors
> 🖥 Network adapters
∨ 🖥 Ports (COM & LPT)
    🖧 Communications Port (COM1)
    🖧 Intel(R) Active Management Technology - SOL (COM3)
    🖧 MSP430 Application UART (COM10)
> 🖨 Print queues
> 🖳 Processors
> 🖫 Sensors

Options for node "test" ✕

Category:
General Options
C/C++ compiler
Assembler
Custom Build
Build Actions
Linker
Debugger
FET Debugger
Simulator

Setup | Download | Breakpoints

Connection
Texas Instrument USB-IF ▾ | Automatic | ...
                        Parallel port 1 ▾

Debug protocol
○ Automatic selection
○ Manual selection
   ○ Spy-Bi-Wire
   ○ 4-Wire JTAG

Target VCC
Override default ☑
Target VCC (in Volt): 3.6
Settling time (in ms): 0

☐ Attach to running target
☐ Disable memory cache   ☐ Debug LPMx.5

Factory Settings

OK | Cancel

➡

Options for node "test" ✕

Category:
General Options
C/C++ compiler
Assembler
Custom Build
Build Actions
Linker
Debugger
FET Debugger
Simulator

Setup | Download | Breakpoints

USB selection ✕
HID0019:COM10 | Select
Automatic | Cancel

To identify a connection, click a port in the list to see
the Mode LED on the attached USB-IF light up.

○ 4-Wire JTAG
☐ Attach to running target
☐ Disable memory cache   ☐ Debug LPMx.5

Target VCC (in Volt): 3.6
Settling time (in ms): 0

Factory Settings

OK | Cancel

3. Memory Organization Differences:

a) LAB Evaluation Kit:

memory organization in MSP430FG46xx

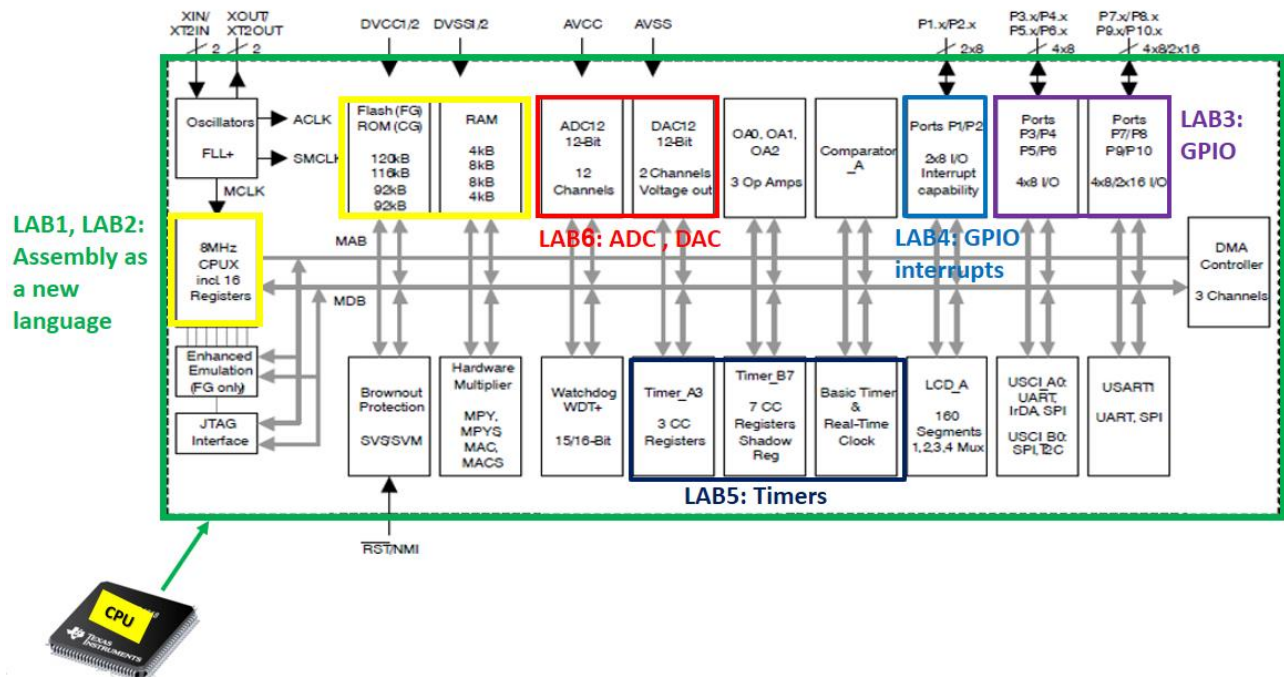|		MSP430FG4616	MSP430FG4617	MSP430FG4618	MSP430FG4619	
Memory Main: interrupt vector Main: code memory	Size Flash Flash	92KB 0FFFFh – 0FFC0h 018FFFh – 002100h	92KB 0FFFFh – 0FFC0h 019FFFh – 003100h	116KB 0FFFFh – 0FFC0h 01FFFFh – 003100h	120KB 0FFFFh – 0FFC0h 01FFFFh – 002100h	**FLASH**
RAM (Total)	Size	4KB 020FFh – 01100h	8KB 030FFh – 01100h	8KB 030FFh – 01100h	4KB 020FFh – 01100h	
Extended	Size	2KB 020FFh – 01900h	6KB 030FFh – 01900h	6KB 030FFh – 01900h	2KB 020FFh – 01900h	**RAM**
Mirrored	Size	2KB 018FFh – 01100h	2KB 018FFh – 01100h	2KB 018FFh – 01100h	2KB 018FFh – 01100h	
Information memory	Size Flash	256 Byte 010FFh – 01000h	256 Byte 010FFh – 01000h	256 Byte 010FFh – 01000h	256 Byte 010FFh – 01000h	
Boot memory	Size ROM	1KB 0FFFh – 0C00h	1KB 0FFFh – 0C00h	1KB 0FFFh – 0C00h	1KB 0FFFh – 0C00h	
RAM (mirrored at 018FFh – 01100h)	Size	2KB 09FFh – 0200h	2KB 09FFh – 0200h	2KB 09FFh – 0200h	2KB 09FFh – 0200h	
Peripherals	16 bit 8 bit 8-bit SFR	01FFh – 0100h 0FFh – 010h 0Fh – 00h	01FFh – 0100h 0FFh – 010h 0Fh – 00h	01FFh – 0100h 0FFh – 010h 0Fh – 00h	01FFh – 0100h 0FFh – 010h 0Fh – 00h	

b) Personal Evaluation Kit:

Memory Organization in MSP430G2553

Table 8. Memory Organization

		MSP430G2153	MSP430G2253 MSP430G2213	MSP430G2353 MSP430G2313	MSP430G2453 MSP430G2413	MSP430G2553 MSP430G2513	
Memory Main: interrupt vector Main: code memory	Size Flash Flash	1kB 0xFFFF to 0xFFC0 0xFFFF to 0xFC00	2kB 0xFFFF to 0xFFC0 0xFFFF to 0xF800	4kB 0xFFFF to 0xFFC0 0xFFFF to 0xF000	8kB 0xFFFF to 0xFFC0 0xFFFF to 0xE000	16kB 0xFFFF to 0xFFC0 0xFFFF to 0xC000	**FLASH**
Information memory	Size Flash	256 Byte 010FFh to 01000h	256 Byte 010FFh to 01000h	256 Byte 010FFh to 01000h	256 Byte 010FFh to 01000h	256 Byte 010FFh to 01000h	
RAM	Size	256 Byte 0x02FF to 0x0200	256 Byte 0x02FF to 0x0200	256 Byte 0x02FF to 0x0200	512 Byte 0x03FF to 0x0200	512 Byte 0x03FF to 0x0200	**RAM**
Peripherals	16-bit 8-bit 8-bit SFR	01FFh to 0100h 0FFh to 010h 0Fh to 00h	01FFh to 0100h 0FFh to 010h 0Fh to 00h	01FFh to 0100h 0FFh to 010h 0Fh to 00h	01FFh to 0100h 0FFh to 010h 0Fh to 00h	01FFh to 0100h 0FFh to 010h 0Fh to 00h	

4. Peripherals Organization Differences:

a) *LAB Evaluation Kit:*

b) *Personal Evaluation Kit:*

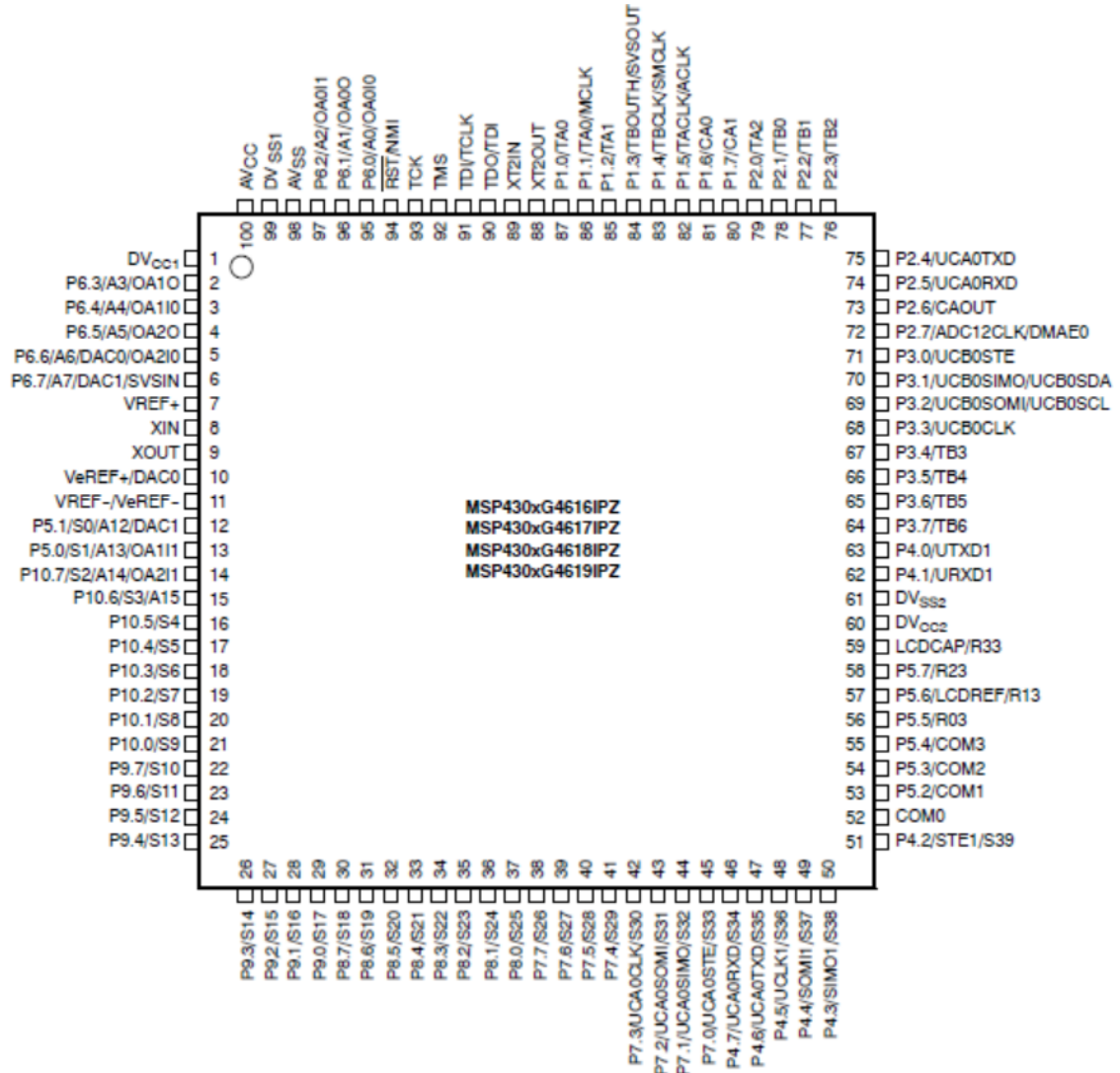NOTE: Port P3 is available on 28-pin and 32-pin devices only.
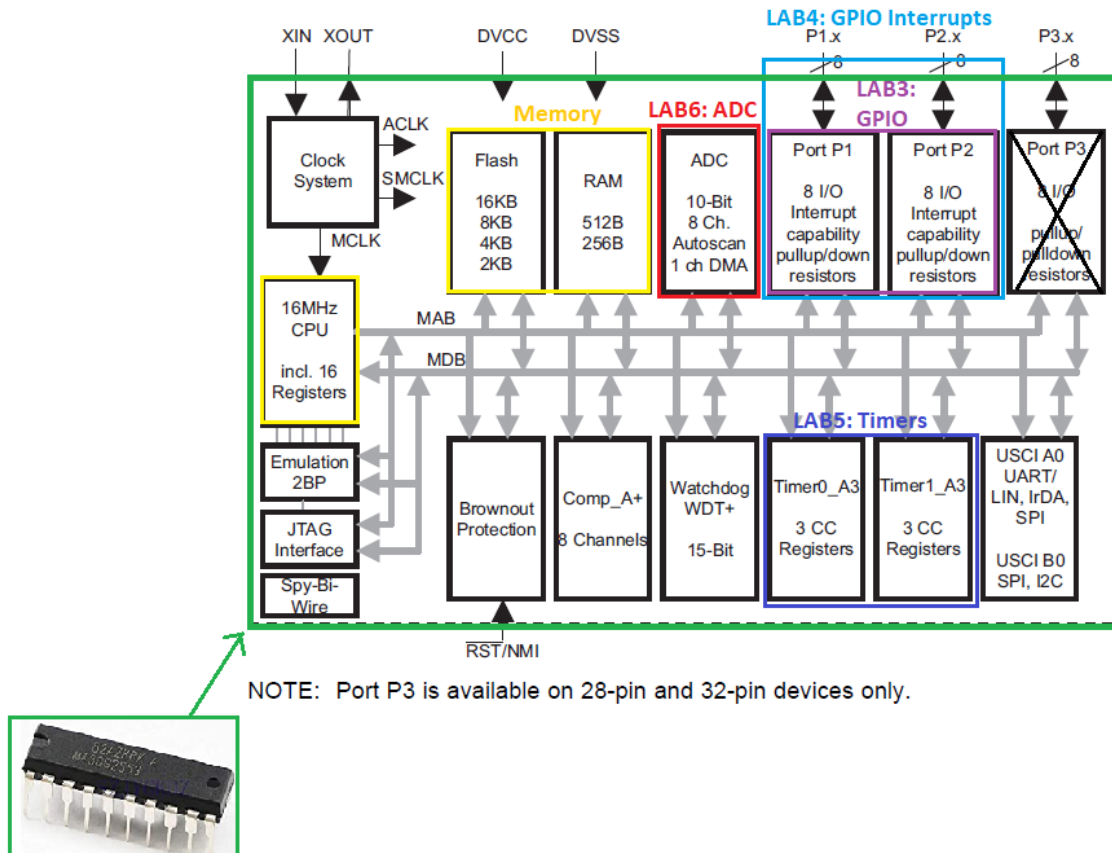
5. Pin out designation Differences:

a) LAB Evaluation Kit (10 ports):

Left side pins (top to bottom):
- 1 DV$_{CC1}$
- 2 P6.3/A3/OA1O
- 3 P6.4/A4/OA1I0
- 4 P6.5/A5/OA2O
- 5 P6.6/A6/DAC0/OA2I0
- 6 P6.7/A7/DAC1/SVSIN
- 7 VREF+
- 8 XIN
- 9 XOUT
- 10 VeREF+/DAC0
- 11 VREF-/VeREF-
- 12 P5.1/S0/A12/DAC1
- 13 P5.0/S1/A13/OA1I1
- 14 P10.7/S2/A14/OA2I1
- 15 P10.6/S3/A15
- 16 P10.5/S4
- 17 P10.4/S5
- 18 P10.3/S6
- 19 P10.2/S7
- 20 P10.1/S8
- 21 P10.0/S9
- 22 P9.7/S10
- 23 P9.6/S11
- 24 P9.5/S12
- 25 P9.4/S13

Top side pins (left to right, pins 100–76):
- 100
- 99 AVCC
- 98 DV SS1
- 97 AVSS
- 96 P6.2/A2/OA0I1
- 95 P6.1/A1/OA0O
- 94 P6.0/A0/OA0I0
- 93 RST/NMI
- 92 TCK
- 91 TMS
- 90 TDI/TCLK
- 89 TDO/TDI
- 88 XT2IN
- 87 XT2OUT
- 86 P1.0/TA0
- 85 P1.1/TA0/MCLK
- 84 P1.2/TA1
- 83 P1.3/TBOUTH/SVSOUT
- 82 P1.4/TBCLK/SMCLK
- 81 P1.5/TACLK/ACLK
- 80 P1.6/CA0
- 79 P1.7/CA1
- 78 P2.0/TA2
- 77 P2.1/TB0
- 76 P2.2/TB1
- P2.3/TB2

Chip labels:
MSP430xG4616IPZ
MSP430xG4617IPZ
MSP430xG4618IPZ
MSP430xG4619IPZ

Right side pins (top to bottom):
- 75 P2.4/UCA0TXD
- 74 P2.5/UCA0RXD
- 73 P2.6/CAOUT
- 72 P2.7/ADC12CLK/DMAE0
- 71 P3.0/UCB0STE
- 70 P3.1/UCB0SIMO/UCB0SDA
- 69 P3.2/UCB0SOMI/UCB0SCL
- 68 P3.3/UCB0CLK
- 67 P3.4/TB3
- 66 P3.5/TB4
- 65 P3.6/TB5
- 64 P3.7/TB6
- 63 P4.0/UTXD1
- 62 P4.1/URXD1
- 61 DV$_{SS2}$
- 60 DV$_{CC2}$
- 59 LCDCAP/R33
- 58 P5.7/R23
- 57 P5.6/LCDREF/R13
- 56 P5.5/R03
- 55 P5.4/COM3
- 54 P5.3/COM2
- 53 P5.2/COM1
- 52 COM0
- 51 P4.2/STE1/S39

Bottom side pins (left to right, pins 26–50):
- 26 P9.3/S14
- 27 P9.2/S15
- 28 P9.1/S16
- 29 P9.0/S17
- 30 P8.7/S18
- 31 P8.6/S19
- 32 P8.5/S20
- 33 P8.4/S21
- 34 P8.3/S22
- 35 P8.2/S23
- 36 P8.1/S24
- 37 P8.0/S25
- 38 P7.7/S26
- 39 P7.6/S27
- 40 P7.5/S28
- 41 P7.4/S29
- 42 P7.3/UCA0CLK/S30
- 43 P7.2/UCA0SOMI/S31
- 44 P7.1/UCA0SIMO/S32
- 45 P7.0/UCA0STE/S33
- 46 P4.7/UCA0RXD/S34
- 47 P4.6/UCA0TXD/S35
- 48 P4.5/UCLK1/S36
- 49 P4.4/SOMI1/S37
- 50 P4.3/SIMO1/S38

b) Personal Evaluation Kit (2 ports):

Left side pins:
- 1 DVCC
- 2 P1.0/TA0CLK/ACLK/A0/CA0
- 3 P1.1/TA0.0/UCA0RXD/UCA0SOMI/A1/CA1
- 4 P1.2/TA0.1/UCA0TXD/UCA0SIMO/A2/CA2
- 5 P1.3/ADC10CLK/CAOUT/VREF-/VEREF-/A3/CA3
- 6 P1.4/SMCLK/UCB0STE/UCA0CLK/VREF+/VEREF+/A4/CA4/TCK
- 7 P1.5/TA0.0/UCB0CLK/UCA0STE/A5/CA5/TMS
- 8 P2.0/TA1.0
- 9 P2.1/TA1.1
- 10 P2.2/TA1.1

Chip label:
N20
PW20
(TOP VIEW)

Right side pins:
- 20 DVSS
- 19 XIN/P2.6/TA0.1
- 18 XOUT/P2.7
- 17 TEST/SBWTCK
- 16 RST/NMI/SBWTDIO
- 15 P1.7/CAOUT/UCB0SIMO/UCB0SDA/A7/CA7/TDO/TDI
- 14 P1.6/TA0.1/UCB0SOMI/UCB0SCL/A6/CA6/TDI/TCLK
- 13 P2.5/TA1.2
- 12 P2.4/TA1.2
- 11 P2.3/TA1.0