CAPTIVATE CONNECTORS

MSP VCC Selection

CAPTIVATE-PGMR Header

VCC   VCC_5V   VCC_LDO   VCC_METERED

J8

C0 1µF

SH-J2

UART_RXD
COM_UART_RXD   SBWTDIO   HID_UART_RXD
COM_UART_TXD   SBWTCK   HID_UART_TXD   UART_TXD

J5 Connector 10X2RA

J6   SH-J3   J7   SH-J4

GND

MSP430FR2522 CAPTIVATE MCU

U1

VCC   VREG

C1 4.7µF   C2 0.1µF   C3 1µF

GND

CAP1.0	470	R4
CAP1.1	470	R5
CAP1.2	470	R6
CAP1.3	470	R7
CAP0.0	470	R8
CAP0.1	470	R9
CAP0.2	470	R10
CAP0.3	470	R11

5 DVCC
18 VREG

2 P1.0(RD)/UCB0STE/A0/VREF+/CAP1.0
1 P1.1(RD)/UCB0CLK/ACLK/A1/VREF+/CAP1.1
20 P1.2(RD)/UCB0SIMO/UCB0SDA/SMCLK/A2/VEREF-/CAP1.2
19 P1.3(RD)/UCB0SOMI/UCB0SCL/MCLK/A3/CAP1.3
17 P1.4(RD)/UCA0TXD/UCA0SIMO/TA0.1/TCK/CAP0.0
16 P1.5(RD)/UCA0RXD/UCA0SOMI/TA0.2/TMS/CAP0.1
15 P1.6(RD)/UCA0CLK/TA0CLK/TDI/TCLK/CAP0.2
14 P1.7(RD)/UCA0STE/TDO/CAP0.3

R1 10k

UART_TXD 8 P2.0(RD)/UCA0TXD/UCA0SIMO/XOUT
UART_RXD 7 P2.1(RD)/UCA0RXD/UCA0SOMI/XIN
LED_I2C_SDA 13 P2.2(RD)/TA1.1/SYNC/A4
LED_I2C_SCL 12 P2.3(RD)/TA1.2/UCB0STE/A5
BP_I2C_IRQ 11 P2.4(RD)/TA1CLK/UCB0CLK/A6
BP_I2C_SDA 10 P2.5(RD)/UCB0SIMO/UCB0SDA/A7
BP_I2C_SCL 9 P2.6(RD)/UCB0SOMI/UCB0SCL

J9
BP_I2C_IRQB
BP_I2C_IRQA

SH-J7

TEST(RD)/SBWTCK 3 SBWTCK
RST(RD)/NMI/SBWTDIO 4 SBWTDIO

DVSS 6
PAD 21

R12 47k

C4 1000pF

GND   GND

MSP430FR2522IRHL

BOOSTER PACK CONNECTORS

BoosterPack Left Headers (J1 and J3)

BoosterPack Right Headers (J2 and J4)

VCC   VCC_5V

J1   J3   GND   BP_I2C_IRQB

R3 2.2k   BP_I2C_SCL
R2 2.2k   BP_I2C_SDA

DW-10-15-F-D-210

J2   J4   GND
BP_I2C_IRQA

DW-10-15-F-D-210

Note that J1-J4 pin numbering here relates to each individual connector. The BoosterPack pin numbering scheme is different. See the PCB silkscreen for BoosterPack pin numbering.

KEYPAD

CAP0.1 RX BTN1   CAP0.1 RX BTN2   CAP0.1 RX BTN3
TX0 TX   BTN-MUTUAL   TX1 TX   BTN-MUTUAL   TX2 TX   BTN-MUTUAL

CAP1.1 RX BTN4   CAP1.1 RX BTN5   CAP1.1 RX BTN6
TX0 TX   BTN-MUTUAL   TX1 TX   BTN-MUTUAL   TX2 TX   BTN-MUTUAL

CAP0.2 RX BTN7   CAP0.2 RX BTN8   CAP0.2 RX BTN9
TX0 TX   BTN-MUTUAL   TX1 TX   BTN-MUTUAL   TX2 TX   BTN-MUTUAL

CAP1.0 RX BTN10   CAP1.0 RX BTN11   CAP1.0 RX BTN12
TX0 TX   BTN-MUTUAL   TX1 TX   BTN-MUTUAL   TX2 TX   BTN-MUTUAL

NOTE: BTN1-BTN12 and G1 are PCB sensing electrodes, implemented in copper. There is no component to buy or mount.

Guard and Proximity Channel

G1

CAP0.3   RX
68pF CRX5 DNP
GND

Noise Immunity Capacitors for Mutual RX Lines

CAP0.1 68pF CRX1
CAP0.2 68pF CRX2
CAP1.0 68pF CRX3
CAP1.1 68pF CRX4

GND

Prototyping Jumpers on TX IOs

CAP0.0 6   5 TX2
CAP1.3 4   3 TX1
CAP1.2 2   1 TX0

J10

SH-J5A   SH-J5B   SH-J5C

LED DRIVER

VCC

U2

R42 4.7k   R43 4.7k

LED_I2C_SCL
LED_I2C_SDA

R13 10k

C5 1µF

GND   GND

Pin	LED
1	LED0
2	LED1
3	LED2
4	LED3
5	LED4
6	LED5
7	LED6
8	LED7
10	LED8
11	LED9
12	LED10
13	LED11
14	LED12
15	LED13

22 A0
23 A1
24 A2
19 SCL
20 SDA
18 RST
21 VDD
9 GND
25 DAP

LP3943ISQ/NOPB

STATUS LEDS

VCC

R40 100k   D13   R38 390   LED13   Red

R41 100k   D14   R39 390   LED12   Red

KEYPAD LEDS

VCC

R20 100k   D3   BTN1_LED   R14 390   LED0   Red
R21 100k   D6   BTN2_LED   R15 390   LED1   Red
R22 100k   D9   BTN3_LED   R16 390   LED2   Red
R23 100k   D12   BTN4_LED   R17 390   LED3   Red
R24 100k   D11   BTN5_LED   R18 390   LED4   Red
R25 100k   D8   BTN6_LED   R19 390   LED5   Red

VCC

R32 100k   D2   BTN7_LED   R26 390   LED6   Red
R33 100k   D5   BTN8_LED   R27 390   LED7   Red
R34 100k   D10   BTN9_LED   R28 390   LED8   Red
R35 100k   D7   BTN10_LED   R29 390   LED9   Red
R36 100k   D4   BTN11_LED   R30 390   LED10   Red
R37 100k   D1   BTN12_LED   R31 390   LED11   Red

PCB
LOGO
Texas Instruments

PCB
LOGO
Pb-Free Symbol

PCB
LOGO
FCC disclaimer

PCB
LOGO
Logo4

PCB
LOGO
Texas Instruments

CELOGO

M1

MCH012A

H1
SJ61A1

H2
SJ61A1

H3
SJ61A1

H4
SJ61A1

DNP
FID1

DNP
FID2

DNP
FID3

LBL1
PCB Label
Size: 0.65" x 0.20 "

ZZ1
Label Assembly Note
This Assembly Note is for PCB labels only

PCB Number: MCU027
PCB Rev: 1.0

Variant/Label Table	
Variant	Label Text
001	BOOSTXL-CAPKEYPAD