```
        Wiring for EPM570T100C5 Board#1
*Note Pins 37 and 89 are  Ground  on EPM570 and cannot be programmed
*Note Pins 39 and 87 are 3.3Volts on EPM570 and cannot be programmed


                                      | 3c  Fan |        8c Valve and Probe    |  Probe  | Light |      |      12c Tool Changer
    |
                                      | Cable   |          Cable               |  Cables | Relay |      |            Cable
    |
                                      | 1    2  |  3      4      5      6    7  |  8    9 |  10   | 11 | 12    13    14    15    16
 17 |
                                      | Fan  Fan|  WBlow ZBlow Cone Eject Probe | TSB  TSP|       | Inv | S1    S2 Button SPOH  Lamp
 S3 |
Speed Change Port                     | Out  Out|  Out    Out    Out  Out  Out  | Out  Out|  Out  | xIn | In    In    In    In    Out
 In |
TSP     - Tool Set Power
TSB     - Tool Set Blower                Blue         Brn   Blk                      Blk        Shield Shield
Probe   - Probe Power                     14    15    16    17    18    19    20    21    22    23    24    25         <-- Parallel Port DB
25
                                                                              SPDG        SPDSH 8CSH
SPD0    - Multispeed Bit 0             +2!C1  +1S3  +2C2 +2!C3  GND   GND   GND   GND   GND   GND   GND   GND
SPD1    - Multispeed Bit 1            AutoFd Error  Init SelIn
SPD2    - Multispeed Bit 2              IO    In    IO    IO
SPD3    - Multispeed Bit 3
SPOH    - Spindle Overheat NC          IO    IO    IO    IO    IO    IO    IO    IO    IO    In    In    In    In
InvSyn  - Inverter Synchronized      Strobe  D0    D1    D2    D3    D4    D5    D6    D7    Ack   Bsy   PE    Sel
SPDG    - Multispeed Ground          +2!C0  +0D0  +0D1  +0D2  +0D3  +0D4  +0D5  +0D6  +0D7 +1S6  +1!S7 +1S5  +1S4
SPDSH   - Multispeed Shield                  TSP   TSB         Probe SPD0  SPD1  SPD2  SPD3        SPOH        InvSyn
8CSH    - 8 Conductor Shield           1     2     3     4     5     6     7     8     9     10    11    12    13    <-- Parallel Port DB
25

                                       W     R     O     Y     G     R     G     B     W


Tool Change Port
xEject  - Eject Tool                   O    Blue   Y     G                             Blk        Shield Shield
xCone   - Clean Cone / Air Purge       14    15    16    17    18    19    20    21    22    23    24    25         <-- Parallel Port
DB 25
xBlow   - Z Head Blower                S1          S2    Btn                           10CG        10CSH TCSH
xFan    - Tool Changer Fan           +2!C1  +1S3  +2C2 +2!C3  GND   GND   GND   GND   GND   GND   GND   GND
xS1     - S1 - Tool Present          AutoFd Error  Init SelIn
xS2     - S2 - Tool Ejected            IO    In    IO    IO
xS3     - S3 - Shart Rotation
xBtn    - Button                       IO    IO    IO    IO    IO    IO    IO    IO    IO    In    In    In    In
xLamp   - Button Lamp                Strobe  D0    D1    D2    D3    D4    D5    D6    D7    Ack   Bsy   PE    Sel
xSPOH   - Spindle Overheat NC        +2!C0  +0D0  +0D1  +0D2  +0D3  +0D4  +0D5  +0D6  +0D7 +1S6  +1!S7 +1S5  +1S4
xInvSyn - Inverter Synchronized        S3   Eject  Cone  Blow   Fan  Lamp  Opto+ Opto- Lites       SPOH        InvSyn
TCSH    - Tool Changer Cable Shield    1     2     3     4     5     6     7     8     9     10    11    12    13    <-- Parallel Port DB
25
10CG    - 10 Conductor Ground          R    Blk   Brn    R     O     Y     G    Blue   W    Grey   W    Brn    P
10CSH   - 10 Conductor Shield
Opto+   - Enable Opto Isolators+
Opto-   - Enable Opto Isolators-
Lites   - Shop Lights




Limit Switches, Spindle Power, & Probe
                                                 W     R   SHLD  Brn   Grey  Brn   W    Blue   P     Y     G     R     O
                                                 13    12    11    10    9     8     7     6     5     4     3     2     1   <--DB Ribbon cable
pins
S5V  SG           SX-   SX+   SY-   SY+  SZ-  SZ+  LED2  !TP   !VP  GND   R-L   R+L  LW-L  LW+L  Z-L   Z+L   Y-L   Y+L   X-L   X+L      LED2 LED3
5V  GND  3V3       99    97    95    91   89   87   85    83    81    77    75    73    71    69    67    61    57    55    53    51       D2   D3 <--CPLD
pins
5V  GND  3V3      100    98    96    92  X90X X88X  86    84    82    78    76    74    72    70    68    66    58    56    54    52    <-------------CPLD
pins
                  !RSL !LWSL !ZSL SSP         LED3  ---  GND   GND   GND   GND   GND   PRB               !RP   !LWP  !ZP   SP
                                          GND  3V3              25    24    23    22    21    20    19    18    17    16    15    14    <--DB Ribbon cable
pins
                                                                                  Blak             Blue  Blk   Brn   O
                                                                                                                     G
                                                                                                              grn   blk   R




Stepper Motor Drivers
                                                                                 B/W    B   G/W    G
                                                                            8     7     6     5     4     3     2     1   <--DB 15 Pins for
Stac5
                                                                                 15    14    13    12    11    10    9   <--DB 15 Pins for
Stac5
                                                                                       O/W    O

                                                               G    G/W    B   B/W
                                                       13    12    11    10    9     8     7     6     5     4     3     2     1   <--DB 25 Pins for
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Stac6
                                                 25   24   23   22   21   20   19   18   17   16   15   14      <--DB 25 Pins for
Stac6
                                                                                    O/W        O


                                                B/W    B  G/W    G  B/W    B  G/W    G  B/W    B  G/W    G
                                           13   12   11   10    9    8    7    6    5    4    3    2    1      <--DB Ribbon cable
pins
                     SEN  SXS  SYS  SZS  SSC  GND  ZD-  ZD+  ZS-  ZS+  YD-  YD+  YS-  YS+  XD-  XD+  XS-  XS+
            5V  3V3    2    4    6    8   16   18   20   26   28   30   34   36   38   40   42   44   48   50    <------------CPLD
pins
           GND  GND    1    3    5    7   15   17   19   21   27   29   33   35  X37X X39X  41   43   47   49    <------------CPLD
pins
                 SG  !SA2  SXD  SYD  SZD  SSD  !SA1 GND  RD-  RD+  RS-  RS+  GND            LWD- LWD+ LWS- LWS+
                       25   24   23   22   21   20   19   18   17   16   15   14            17   16   15   14    <--DB Ribbon cable
pins
                                                                                    B/W    B  G/W    G
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Pin Definitions:
5V   -   5V Power
3V3 - 3.3V Power
GND - Ground Connection
LED1 - On Board LED1 - Power Indicator01
LED2 - On Board LED2 - Set to OSC/4000000 - blink led to show CPLD is working
LED3 - On Board LED3 - Set to OSC/2000000 - blink led to show CPLD is working
SSC - Synchronous Serial Clock - DTR
SSD - Synchronous Serial Data - DSR
XOSC - External Crystal Oscillator Monitor (50MHz)
OSC - Oscillator Used by Shift Registers

Smoothie Pins:
SG   - Smoothie Ground
S5V - Smoothie 5V from one of the limit switches
SX+ - Smoothieboard Input X+ Limit
SX- - Smoothieboard Input X- Limit
SY+ - Smoothieboard Input Y+ Limit
SY- - Smoothieboard Input Y- Limit
SZ+ - Smoothieboard Input Z+ Limit
SZ- - Smoothieboard Input Z- Limit
SEN - Smoothieboard Output Enable (any)
SXS - Smoothieboard Output X Step
SXD - Smoothieboard Output X Direction
SYS - Smoothieboard Output Y Step
SYD - Smoothieboard Output Y Direction
SZS - Smoothieboard Output Z Step
SZD - Smoothieboard Output Z Direction
SSP - Smoothieboard Output Spindle Power - make high when spindle on selected head should be running
ZSL - Smoothieboard Output Z Select - make high to control Z axis and Z head with smoothie Z commands
LWSL - Smoothieboard Output L or W Select - make high to control L or W axis and L or W head with smoothie Z commands
RSL - Smoothieboard Output R Select - make high to control R axis and R head with smoothie Z commands
!SA1 - Smoothieboard Output for Air Cylinder Control #1 (active low)
!SA2 - Smoothieboard Output for Air Cylinder Control #2 (active low)
SPRB - Smoothieboard Probe Input

Machine Control Pins:
X-L - Machine X -Limit Switch - Connect to ground during limit
X+L - Machine X +Limit Switch - Connect to ground during limit
Y-L - Machine Y -Limit Switch - Connect to ground during limit
Y+L - Machine Y +Limit Switch - Connect to ground during limit
Z-L - Machine Z -Limit Switch - Connect to ground during limit
Z+L - Machine Z +Limit Switch - Connect to ground during limit
R-L - Machine Z -Limit Switch - Connect to ground during limit
R+L - Machine Z +Limit Switch - Connect to ground during limit
LW-L - Machine L or W -Limit Switch - Connect to ground during limit
LW+L - Machine L or W +Limit Switch - Connect to ground during limit
XS+ - Driver X Step+ - for rising edge drivers or the + side of differential step signal
XS- - Driver X Step- - for falling edge drivers or the - side of differential step signal
YS+ - Driver Y Step+ - for rising edge drivers or the + side of differential step signal
YS- - Driver Y Step- - for falling edge drivers or the - side of differential step signal
ZS+ - Driver Z Step+ - for rising edge drivers or tymhe + side of differential step signal
ZS- - Driver Z Step- - for falling edge drivers or the - side of differential step signal
RS+ - Driver R Step+ - for rising edge drivers or the + side of differential step signal
RS- - Driver R Step- - for falling edge drivers or the - side of differential step signal
LWS+ - Driver L or W Step+ - for rising edge drivers or the + side of differential step signal
LWS- - Driver L or W Step- - for falling edge drivers or the - side of differential step signal
XS+ - Driver X Direction+ - for rising edge drivers or the + side of differential Direction signal
XS- - Driver X Direction- - for falling edge drivers or the - side of differential Direction signal
YS+ - Driver Y Direction+ - for rising edge drivers or the + side of differential Direction signal

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YS-  - Driver Y Direction- - for falling edge drivers or the - side of differential Direction signal
ZS+  - Driver Z Direction+ - for rising  edge drivers or the + side of differential Direction signal
ZS-  - Driver Z Direction- - for falling edge drivers or the - side of differential Direction signal
RS+  - Driver R Direction+ - for rising  edge drivers or the + side of differential Direction signal
RS-  - Driver R Direction- - for falling edge drivers or the - side of differential Direction signal
LWS+ - Driver L or W Direction+ - for rising  edge drivers or the + side of differential Direction signal
LWS- - Driver L or W Direction- - for falling edge drivers or the - side of differential Direction signal
!ZP   - Z Spindle Power Signal - Goes low when Z spindle is selected connect to - side of spindle opto isolator
!LWP  - L or W Spindle Power Signal - Goes low when L or W spindle is selected connect to - side of spindle opto isolator
!RP   - R Spindle Power Signal - Goes low when R spindle is selected connect to - side of spindle opto isolator
SP    - Spindle Power Signal - Goes high when any spindle is powered up, connects to + side of all spindle opto isolators
!TP  !A1  - T Head, or 5X Air Cylinder Control #1
!VP  !A2  - U Head, V Head, or 5Y Air Cylinder Control #2
PRB   - Probe Input
```