

# Crossbar on the C8051F120

EVB Pin: 20 21 18 19 16 17 14 15 12 13 10 11 6 9 4 5 29 30 27 28 24 25 22 23

| PIN I/O | P0 |   |   |   |     |     |     | P1  |           |            |            |            |            |            | P2                            |        |        |         |         |         |         | P3                        |         |        |        |        |        |        | Crossbar Register Bits |        |        |                    |   |  |  |
|---------|----|---|---|---|-----|-----|-----|---|-----------|------------|------------|------------|------------|------------|-------------------------------|--------|--------|---------|---------|---------|---------|---------------------------|---------|--------|--------|--------|--------|--------|------------------------|--------|--------|--------------------|---|--|--|
|         | 0  | 1 | 2 | 3 | 4   | 5   | 6   | 7   | 0         | 1          | 2          | 3          | 4          | 5          | 6                             | 7      | 0      | 1       | 2       | 3       | 4       | 5                         | 6       | 7      | 0      | 1      | 2      | 3      |                        | 4      | 5      | 6                  | 7 |  |  |
| TX0     | ●  |   |   |   |     |     |     |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | UART0EN: XBR0.2    |   |  |  |
| RX0     |    | ● |   |   |     |     |     |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | SPI0EN: XBR0.1     |   |  |  |
| SCK     | ●  |   | ● |   |     |     |     |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| MISO    |    | ● |   | ● |     |     |     |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| MOSI    |    |   | ● |   | ●   |     |     |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| NSS     |    |   |   | ● |     | ●   |     | NSS is not assigned to a port pin when the SPI is placed in 3-wire mode |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| SDA     | ●  | ● | ● | ● | ●   | ●   | ●   |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | SMB0EN: XBR0.0     |   |  |  |
| SCL     |    | ● | ● | ● | ●   | ●   | ●   |   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| TX1     | ●  |   | ● |   | ●   |     | ●   | ●   |           |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | UART1EN: XBR2.2    |   |  |  |
| RX1     |    | ● |   | ● |     | ●   |     | ●   | ●         |            |            |            |            |            |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| CEX0    | ●  |   | ● |   | ●   |     | ●   | ●   | ●         |            | ●          |            | ●          |            | ●                             |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | PCA0ME: XBR0.[5:3] |   |  |  |
| CEX1    |    | ● |   | ● |     | ●   |     | ●   | ●         | ●          |            | ●          |            | ●          |                               |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| CEX2    |    |   | ● |   | ●   |     | ●   | ●   | ●         | ●          | ●          |            | ●          |            | ●                             |        |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| CEX3    |    |   |   | ● |     | ●   |     | ●   | ●         | ●          | ●          | ●          |            | ●          |                               | ●      |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| CEX4    |    |   |   |   | ●   |     | ●   | ●   | ●         | ●          | ●          | ●          |            | ●          |                               | ●      |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| CEX5    |    |   |   |   |     | ●   |     | ●   | ●         | ●          | ●          | ●          |            | ●          |                               | ●      |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        |                    |   |  |  |
| ECI     | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      |        |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | ECI0E: XBR0.6      |   |  |  |
| CP0     | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      |         |         |         |         |                           |         |        |        |        |        |        |                        |        |        | CP0E: XBR0.7       |   |  |  |
| CP1     | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       |         |         |         |                           |         |        |        |        |        |        |                        |        |        | CP1E: XBR1.0       |   |  |  |
| T0      | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       |         |         |                           |         |        |        |        |        |        |                        |        |        | T0E: XBR1.1        |   |  |  |
| /INT0   | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       |         |                           |         |        |        |        |        |        |                        |        |        | INT0E: XBR1.2      |   |  |  |
| T1      | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       |         |                           |         |        |        |        |        |        |                        |        |        | T1E: XBR1.3        |   |  |  |
| /INT1   | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       |                           |         |        |        |        |        |        |                        |        |        | INT1E: XBR1.4      |   |  |  |
| T2      | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       |                           |         |        |        |        |        |        |                        |        |        | T2E: XBR1.5        |   |  |  |
| T2EX    | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | T2EXE: XBR1.6      |   |  |  |
| T4      | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | T4E: XBR2.3        |   |  |  |
| T4EX    | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | T4EXE: XBR2.4      |   |  |  |
| /SYSCLK | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | SYSCKE: XBR1.7     |   |  |  |
| CNVSTR0 | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | CNVSTE0: XBR2.0    |   |  |  |
| CNVSTR2 | ●  | ● | ● | ● | ●   | ●   | ●   | ●   | ●         | ●          | ●          | ●          | ●          | ●          | ●                             | ●      | ●      | ●       | ●       | ●       | ●       | ●                         | ●       |        |        |        |        |        |                        |        |        | CNVSTE2: XBR2.5    |   |  |  |
|         |    |   |   |   | ALE | /RD | /WR | AIN2.0/A8   | AIN2.1/A9 | AIN2.2/A10 | AIN2.3/A11 | AIN2.4/A12 | AIN2.5/A13 | AIN2.6/A14 | AIN2.7/A15                    | A8m/A0 | A9m/A1 | A10m/A2 | A11m/A3 | A12m/A4 | A13m/A5 | A14m/A6                   | A15m/A7 | AD0/D0 | AD1/D1 | AD2/D2 | AD3/D3 | AD4/D4 | AD5/D5                 | AD6/D6 | AD7/D7 |                    |   |  |  |
|         |    |   |   |   |     |     |     | AIN2 Inputs/Non-muxed Addr H  |           |            |            |            |            |            | Muxed Addr H/Non-muxed Addr L |        |        |         |         |         |         | Muxed Data/Non-muxed Data |         |        |        |        |        |        |                        |        |        |                    |   |  |  |

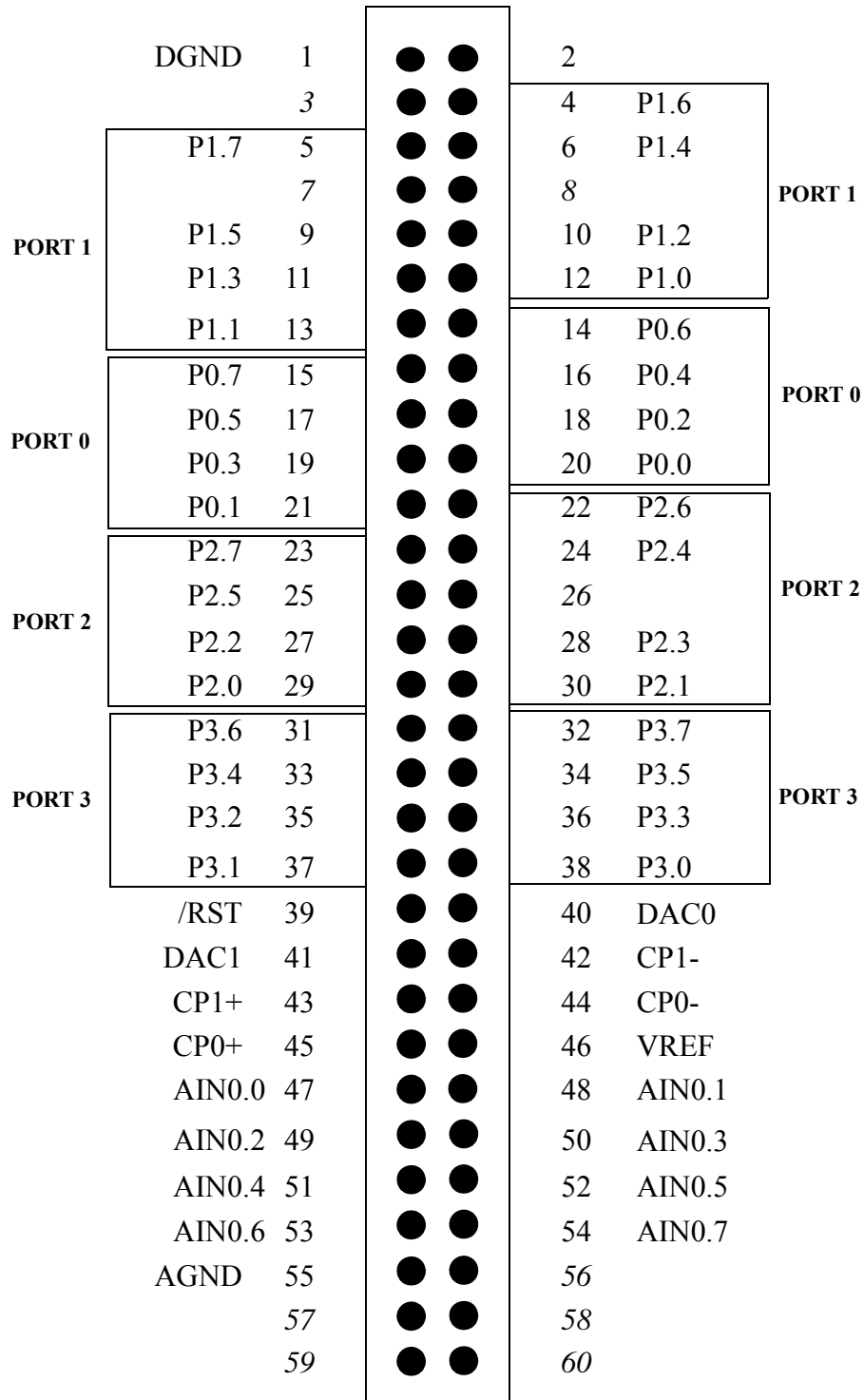
Priority Crossbar Decode Table

|                      | 7   | 6  | 5                                       | 4 | 3 | 2                                  | 1                                    | 0                                 |
|----------------------|---|--|---|---|---|------------------------------------|--------------------------------------|-----------------------------------|
| <b>XBR0 Register</b> | <b>CP0E</b><br>Comparator 0 Output Enable | <b>ECI0E</b><br>PCA0 External Counter Input Enable | <b>PCA0ME</b><br>PCA0 Module I/O Enable |   |   | <b>UART0EN</b><br>UART0 I/O Enable | <b>SPI0EN</b><br>SPI0 Bus I/O Enable | <b>SMB0EN</b><br>SMBus I/O Enable |
| Priority Order       | 7   | 6  | 5                                       |   |   | 1                                  | 2                                    | 3                                 |

|   |   |   |                              |
|---|---|---|------------------------------|
| 5 | 4 | 3 |                              |
| 0 | 0 | 0 | No CEXn                      |
| 0 | 0 | 1 | CEX0                         |
| 0 | 1 | 0 | CEX0, CEX1                   |
| 0 | 1 | 1 | CEX0, CEX1, CEX2             |
| 1 | 0 | 0 | CEX0, CEX1, CEX2, CEX3       |
| 1 | 0 | 1 | CEX0, CEX1, CEX2, CEX3, CEX4 |

XBR0: Port I/O Crossbar Register 0 and Priority Order

# C8051 EVB Port Connector 1



# C8051 EVB Port Connector'4

