**Spartan-3 FPGA Family: Pinout Descriptions**



**FT256: 256-lead Fine-pitch Thin Ball**

*Table 95:* **FT256 Package Pinout *(Continued)* Grid Array**

**Pinout Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Bank** | **XC3S200 XC3S400 XC3S1000 Pin Name** | **FT256 Pin Number** | **Type** | **Signal Name** |
| 0 | IO | A5 | I/O | DATA\_IO\_ETH(7) |
| 0 | IO | A7 | I/O | DATA\_IO\_ETH(6) |
| 0 | IO/VREF\_0 | A3 | VREF | DATA\_IO\_ETH(5) |
| 0 | IO/VREF\_0 | D5 | VREF | DATA\_CNTR\_ETH(7) |
| 0 | IO\_L01N\_0/VRP\_0 | B4 | DCI | DATA\_IO\_ETH(4) |
| 0 | IO\_L01P\_0/VRN\_0 | A4 | DCI | DATA\_IO\_ETH(0) |
| 0 | IO\_L25N\_0 | C5 | I/O | DATA\_IO\_ETH(3) |
| 0 | IO\_L25P\_0 | B5 | I/O | DATA\_IO\_ETH(1) |
| 0 | IO\_L27N\_0 | E6 | I/O | DATA\_CNTR\_ETH(6) |
| 0 | IO\_L27P\_0 | D6 | I/O | DATA\_CNTR\_ETH(3) |
| 0 | IO\_L28N\_0 | C6 | I/O | DATA\_CNTR\_ETH(5) |
| 0 | IO\_L28P\_0 | B6 | I/O | DATA\_IO\_ETH(2) |
| 0 | IO\_L29N\_0 | E7 | I/O | DATA\_CNTR\_ETH(4) |
| 0 | IO\_L29P\_0 | D7 | I/O | DATA\_CNTR\_ETH(2) |
| 0 | IO\_L30N\_0 | C7 | I/O | DATA\_CNTR\_ETH(0) |
| 0 | IO\_L30P\_0 | B7 | I/O | NC |
| 0 | IO\_L31N\_0 | D8 | I/O | ETH\_RSTI |
| 0 | IO\_L31P\_0/VREF\_0 | C8 | VREF | DATA\_CNTR\_ETH(1) |
| 0 | IO\_L32N\_0/GCLK7 | B8 | GCLK | NC |
| 0 | IO\_L32P\_0/GCLK6 | A8 | GCLK | CLK\_25MHZ |
| 0 | VCCO\_0 | E8 | VCCO | 3.3V |
| 0 | VCCO\_0 | F7 | VCCO | 3.3V |
| 0 | VCCO\_0 | F8 | VCCO | 3.3V |
| 1 | IO | A9 | I/O | DATA\_STRB\_USB(2) |
| 1 | IO | A12 | I/O | DATA\_STRB\_USB(1) |
| 1 | IO | C10 | I/O | DATA\_STRB\_USB(0) |
| 1 | IO/VREF\_1 | D12 | VREF | NC |
| 1 | IO\_L01N\_1/VRP\_1 | A14 | DCI | DATA\_IO\_USB(7) |
| 1 | IO\_L01P\_1/VRN\_1 | B14 | DCI | DATA\_IO\_USB(4) |
| 1 | IO\_L10N\_1/VREF\_1 | A13 | VREF | DATA\_IO\_USB(1) |
| 1 | IO\_L10P\_1 | B13 | I/O | DATA\_IO\_USB(6) |
| 1 | IO\_L27N\_1 | B12 | I/O | DATA\_IO\_USB(3) |
| 1 | IO\_L27P\_1 | C12 | I/O | DATA\_IO\_USB(0) |
| 1 | IO\_L28N\_1 | D11 | I/O | START\_FBn |
| 1 | IO\_L28P\_1 | E11 | I/O | START\_FBp |
| 1 | IO\_L29N\_1 | B11 | I/O | DATA\_IO\_USB(5) |
| 1 | IO\_L29P\_1 | C11 | I/O | DATA\_IO\_USB(2) |
| 1 | IO\_L30N\_1 | D10 | I/O | BCO\_FBn |
| 1 | IO\_L30P\_1 | E10 | I/O | BCO\_FBp |
| 1 | IO\_L31N\_1/VREF\_1 | A10 | VREF | NC |
| 1 | IO\_L31P\_1 | B10 | I/O | NC |
| 1 | IO\_L32N\_1/GCLK5 | C9 | GCLK | NC |
| 1 | IO\_L32P\_1/GCLK4 | D9 | GCLK | NC |
| 1 | VCCO\_1 | E9 | VCCO | 3.3V |
| 1 | VCCO\_1 | F9 | VCCO | 3.3V |
| 1 | VCCO\_1 | F10 | VCCO | 3.3V |
| 2 | IO | G16 | I/O | Command\_VME[2] |
| 2 | IO\_L01N\_2/VRP\_2 | B16 | DCI | LVL1\_Accept\_VME |
| 2 | IO\_L01P\_2/VRN\_2 | C16 | DCI | FPGA\_Addr\_VME[0] |
| 2 | IO\_L16N\_2 | C15 | I/O | FPGA\_Addr\_VME[1] |
| 2 | IO\_L16P\_2 | D14 | I/O | FPGA\_Addr\_VME[2] |
| 2 | IO\_L17N\_2 | D15 | I/O | NC |
| 2 | IO\_L17P\_2/VREF\_2 | D16 | VREF | TCK\_VME |
| 2 | IO\_L19N\_2 | E13 | I/O | Command\_VME[6] |
| 2 | IO\_L19P\_2 | E14 | I/O | TDO\_VME |
| 2 | IO\_L20N\_2 | E15 | I/O | TDI\_VME |
| 2 | IO\_L20P\_2 | E16 | I/O | Command\_VME[7] |
| 2 | IO\_L21N\_2 | F12 | I/O | TMS\_VME |
| 2 | IO\_L21P\_2 | F13 | I/O | TRST\_VME |
| **Bank** | **XC3S200 XC3S400 XC3S1000 Pin Name** | **FT256 Pin Number** | **Type** | **Signal Name** |
| 2 | IO\_L22N\_2 | F14 | I/O | Command\_VME[5] |
| 2 | IO\_L22P\_2 | F15 | I/O | FEM\_Addr\_VME[3] |
| 2 | IO\_L23N\_2/VREF\_2 | G12 | VREF | FEM\_Addr\_VME[2] |
| 2 | IO\_L23P\_2 | G13 | I/O | FEM\_Addr\_VME[1] |
| 2 | IO\_L24N\_2 | G14 | I/O | FEM\_Addr\_VME[0] |
| 2 | IO\_L24P\_2 | G15 | I/O | SC\_DI\_VME |
| 2 | IO\_L39N\_2 | H13 | I/O | Command\_VME[4] |
| 2 | IO\_L39P\_2 | H14 | I/O | Command\_VME[3] |
| 2 | IO\_L40N\_2 | H15 | I/O | Command\_VME[1] |
| 2 | IO\_L40P\_2/VREF\_2 | H16 | VREF | Command\_VME[0] |
| 2 | VCCO\_2 | G11 | VCCO | 3.3V |
| 2 | VCCO\_2 | H11 | VCCO | 3.3V |
| 2 | VCCO\_2 | H12 | VCCO | 3.3V |
| 3 | IO | K15 | I/O | SC\_CS\_VME |
| 3 | IO\_L01N\_3/VRP\_3 | P16 | DCI | Mode\_Bits\_VME[1] |
| 3 | IO\_L01P\_3/VRN\_3 | R16 | DCI | Mode\_Bits\_VME[0] |
| 3 | IO\_L16N\_3 | P15 | I/O | Mode\_Bits\_VME[3] |
| 3 | IO\_L16P\_3 | P14 | I/O | Mode\_Bits\_VME[2] |
| 3 | IO\_L17N\_3 | N16 | I/O | Mode\_Bits\_VME[5] |
| 3 | IO\_L17P\_3/VREF\_3 | N15 | VREF | Mode\_Bits\_VME[4] |
| 3 | IO\_L19N\_3 | M14 | I/O | Mode\_Bits\_VME[7] |
| 3 | IO\_L19P\_3 | N14 | I/O | Mode\_Bits\_VME[6] |
| 3 | IO\_L20N\_3 | M16 | I/O | Mode\_Enable\_VME |
| 3 | IO\_L20P\_3 | M15 | I/O | Addr\_VME[1] |
| 3 | IO\_L21N\_3 | L13 | I/O | Addr\_VME[0] |
| 3 | IO\_L21P\_3 | M13 | I/O | Addr\_VME[3] |
| 3 | IO\_L22N\_3 | L15 | I/O | Addr\_VME[2] |
| 3 | IO\_L22P\_3 | L14 | I/O | Addr\_VME[5] |
| 3 | IO\_L23N\_3 | K12 | I/O | Addr\_VME[4] |
| 3 | IO\_L23P\_3/VREF\_3 | L12 | VREF | Addr\_VME[7] |
| 3 | IO\_L24N\_3 | K14 | I/O | Addr\_VME[6] |
| 3 | IO\_L24P\_3 | K13 | I/O | NC |
| 3 | IO\_L39N\_3 | J14 | I/O | SC\_DO\_VME |
| 3 | IO\_L39P\_3 | J13 | I/O | NC |
| 3 | IO\_L40N\_3/VREF\_3 | J16 | VREF | Sclk\_VME |
| 3 | IO\_L40P\_3 | K16 | I/O | NC |
| 3 | VCCO\_3 | J11 | VCCO | 3.3V |
| 3 | VCCO\_3 | J12 | VCCO | 3.3V |
| 3 | VCCO\_3 | K11 | VCCO | 3.3V |
| 4 | IO | T12 | I/O | NC |
| 4 | IO | T14 | I/O | NC |
| 4 | IO/VREF\_4 | N12 | VREF | ERROR |
| 4 | IO/VREF\_4 | P13 | VREF | NC |
| 4 | IO/VREF\_4 | T10 | VREF | FULL |
| 4 | IO\_L01N\_4/VRP\_4 | R13 | DCI | SC\_LED[7] |
| 4 | IO\_L01P\_4/VRN\_4 | T13 | DCI | SC\_LED[6] |
| 4 | IO\_L25N\_4 | P12 | I/O | SC\_LED[5] |
| 4 | IO\_L25P\_4 | R12 | I/O | SC\_LED[4] |
| 4 | IO\_L27N\_4/DIN/D0 | M11 | DUAL | PROM\_DO |
| 4 | IO\_L27P\_4/D1 | N11 | DUAL | NC |
| 4 | IO\_L28N\_4 | P11 | I/O | SC\_LED[3] |
| 4 | IO\_L28P\_4 | R11 | I/O | SC\_LED[2] |
| 4 | IO\_L29N\_4 | M10 | I/O | SC\_LED[1] |
| 4 | IO\_L29P\_4 | N10 | I/O | SC\_LED[0] |
| 4 | IO\_L30N\_4/D2 | P10 | DUAL | NC |
| 4 | IO\_L30P\_4/D3 | R10 | DUAL | NC |
| 4 | IO\_L31N\_4/INIT\_B | N9 | DUAL | PROM\_RSTn |
| 4 | IO\_L31P\_4/DOUT/BUSY | P9 | DUAL | NC |
| 4 | IO\_L32N\_4/GCLK1 | R9 | GCLK | EMPTY |
| 4 | IO\_L32P\_4/GCLK0 | T9 | GCLK | LOCKED |
| 4 | VCCO\_4 | L9 | VCCO | 3.3V |
| 4 | VCCO\_4 | L10 | VCCO | 3.3V |
| 4 | VCCO\_4 | M9 | VCCO | 3.3V |
| **Bank** | **XC3S200 XC3S400 XC3S1000 Pin Name** | **FT256 Pin Number** | **Type** | **Signal Name** |
| 5 | IO | N5 | I/O | TEST\_OUT(14) |
| 5 | IO | P7 | I/O | TEST\_OUT(15) |
| 5 | IO | T5 | I/O | NC |
| 5 | IO/VREF\_5 | T8 | VREF | NC |
| 5 | IO\_L01N\_5/RDWR\_B | T3 | DUAL | TEST\_OUT(1) |
| 5 | IO\_L01P\_5/CS\_B | R3 | DUAL | TEST\_OUT(13) |
| 5 | IO\_L10N\_5/VRP\_5 | T4 | DCI | TEST\_OUT(0) |
| 5 | IO\_L10P\_5/VRN\_5 | R4 | DCI | TEST\_OUT(11) |
| 5 | IO\_L27N\_5/VREF\_5 | R5 | VREF | TEST\_OUT(9) |
| 5 | IO\_L27P\_5 | P5 | I/O | TEST\_OUT(12) |
| 5 | IO\_L28N\_5/D6 | N6 | DUAL | TEST\_OUT(10) |
| 5 | IO\_L28P\_5/D7 | M6 | DUAL | TEST\_OUT(8) |
| 5 | IO\_L29N\_5 | R6 | I/O | TEST\_OUT(2) |
| 5 | IO\_L29P\_5/VREF\_5 | P6 | VREF | TEST\_OUT(7) |
| 5 | IO\_L30N\_5 | N7 | I/O | TEST\_OUT(4) |
| 5 | IO\_L30P\_5 | M7 | I/O | TEST\_OUT(6) |
| 5 | IO\_L31N\_5/D4 | T7 | DUAL | NC |
| 5 | IO\_L31P\_5/D5 | R7 | DUAL | TEST\_OUT(3) |
| 5 | IO\_L32N\_5/GCLK3 | P8 | GCLK | TEST\_OUT(5) |
| 5 | IO\_L32P\_5/GCLK2 | N8 | GCLK | BCO\_CLKx4 |
| 5 | VCCO\_5 | L7 | VCCO | 3.3V |
| 5 | VCCO\_5 | L8 | VCCO | 3.3V |
| 5 | VCCO\_5 | M8 | VCCO | 3.3V |
| 6 | IO | K1 | I/O | USE\_ETH |
| 6 | IO\_L01N\_6/VRP\_6 | R1 | DCI | FEM\_ADR\_SW[3] |
| 6 | IO\_L01P\_6/VRN\_6 | P1 | DCI | TDI\_JTAG |
| 6 | IO\_L16N\_6 | P2 | I/O | FEM\_ADR\_SW[2] |
| 6 | IO\_L16P\_6 | N3 | I/O | FEM\_ADR\_SW[1] |
| 6 | IO\_L17N\_6 | N2 | I/O | TDO\_JTAG |
| 6 | IO\_L17P\_6/VREF\_6 | N1 | VREF | FEM\_ADR\_SW[0] |
| 6 | IO\_L19N\_6 | M4 | I/O | BCO\_CLKOUTn |
| 6 | IO\_L19P\_6 | M3 | I/O | BCO\_CLKOUTp |
| 6 | IO\_L20N\_6 | M2 | I/O | TMS\_JTAG |
| 6 | IO\_L20P\_6 | M1 | I/O | BCO\_CLK\_VME |
| 6 | IO\_L21N\_6 | L5 | I/O | MAIN\_RESET |
| 6 | IO\_L21P\_6 | L4 | I/O | BCO\_CLK |
| 6 | IO\_L22N\_6 | L3 | I/O | TCK\_JTAG |
| 6 | IO\_L22P\_6 | L2 | I/O | NC |
| 6 | IO\_L23N\_6 | K5 | I/O | NC |
| 6 | IO\_L23P\_6 | K4 | I/O | NC |
| 6 | IO\_L24N\_6/VREF\_6 | K3 | VREF | FPGA\_Addr\_SW[2] |
| 6 | IO\_L24P\_6 | K2 | I/O | FPGA\_Addr\_SW[1] |
| 6 | IO\_L39N\_6 | J4 | I/O | START\_n |
| 6 | IO\_L39P\_6 | J3 | I/O | START\_p |
| 6 | IO\_L40N\_6 | J2 | I/O | TRST\_JTAG |
| 6 | IO\_L40P\_6/VREF\_6 | J1 | VREF | FPGA\_Addr\_SW[0] |
| 6 | VCCO\_6 | J5 | VCCO | 2.5V |
| 6 | VCCO\_6 | J6 | VCCO | 2.5V |
| 6 | VCCO\_6 | K6 | VCCO | 2.5V |
| 7 | IO | G2 | I/O | GLINK\_RSTn |
| 7 | IO\_L01N\_7/VRP\_7 | C1 | DCI | Mode\_Bits(1) |
| 7 | IO\_L01P\_7/VRN\_7 | B1 | DCI | Mode\_Bits(0) |
| 7 | IO\_L16N\_7 | C2 | I/O | Mode\_Bits(3) |
| 7 | IO\_L16P\_7/VREF\_7 | C3 | VREF | Mode\_Bits(2) |
| 7 | IO\_L17N\_7 | D1 | I/O | Mode\_Bits(5) |
| 7 | IO\_L17P\_7 | D2 | I/O | Mode\_Bits(4) |
| 7 | IO\_L19N\_7/VREF\_7 | E3 | VREF | Mode\_Bits(7) |
| 7 | IO\_L19P\_7 | D3 | I/O | Mode\_Bits(6) |
| 7 | IO\_L20N\_7 | E1 | I/O | NC |
| 7 | IO\_L20P\_7 | E2 | I/O | Mode\_Enable |
| 7 | IO\_L21N\_7 | F4 | I/O | DAVn |
| 7 | IO\_L21P\_7 | E4 | I/O | CAVn |
| 7 | IO\_L22N\_7 | F2 | I/O | LVL1\_Accept |
| **Bank** | **XC3S200 XC3S400 XC3S1000 Pin Name** | **FT256 Pin Number** | **Type** | **Signal Name** |
| 7 | IO\_L22P\_7 | F3 | I/O | LINKn |
| 7 | IO\_L23N\_7 | G5 | I/O | EN\_DAT(1) |
| 7 | IO\_L23P\_7 | F5 | I/O | GLINK\_ERR |
| 7 | IO\_L24N\_7 | G3 | I/O | EN\_DAT(0) |
| 7 | IO\_L24P\_7 | G4 | I/O | FLAG |
| 7 | IO\_L39N\_7 | H3 | I/O | NC |
| 7 | IO\_L39P\_7 | H4 | I/O | USER\_BIT(2) |
| 7 | IO\_L40N\_7/VREF\_7 | H1 | VREF | USER\_BIT(1) |
| 7 | IO\_L40P\_7 | G1 | I/O | USER\_BIT(0) |
| 7 | VCCO\_7 | G6 | VCCO | 3.3V |
| 7 | VCCO\_7 | H5 | VCCO | 3.3V |
| 7 | VCCO\_7 | H6 | VCCO | 3.3V |
| N/A | GND | A1 | GND |  |
| N/A | GND | A16 | GND |  |
| N/A | GND | B2 | GND |  |
| N/A | GND | B9 | GND |  |
| N/A | GND | B15 | GND |  |
| N/A | GND | F6 | GND |  |
| N/A | GND | F11 | GND |  |
| N/A | GND | G7 | GND |  |
| N/A | GND | G8 | GND |  |
| N/A | GND | G9 | GND |  |
| N/A | GND | G10 | GND |  |
| N/A | GND | H2 | GND |  |
| N/A | GND | H7 | GND |  |
| N/A | GND | H8 | GND |  |
| N/A | GND | H9 | GND |  |
| N/A | GND | H10 | GND |  |
| N/A | GND | J7 | GND |  |
| N/A | GND | J8 | GND |  |
| N/A | GND | J9 | GND |  |
| N/A | GND | J10 | GND |  |
| N/A | GND | J15 | GND |  |
| N/A | GND | K7 | GND |  |
| N/A | GND | K8 | GND |  |
| N/A | GND | K9 | GND |  |
| N/A | GND | K10 | GND |  |
| N/A | GND | L6 | GND |  |
| N/A | GND | L11 | GND |  |
| N/A | GND | R2 | GND |  |
| N/A | GND | R8 | GND |  |
| N/A | GND | R15 | GND |  |
| N/A | GND | T1 | GND |  |
| N/A | GND | T16 | GND |  |
| N/A | VCCAUX | A6 | VCCAUX | 2.5V |
| N/A | VCCAUX | A11 | VCCAUX | 2.5V |
| N/A | VCCAUX | F1 | VCCAUX | 2.5V |
| N/A | VCCAUX | F16 | VCCAUX | 2.5V |
| N/A | VCCAUX | L1 | VCCAUX | 2.5V |
| N/A | VCCAUX | L16 | VCCAUX | 2.5V |
| N/A | VCCAUX | T6 | VCCAUX | 2.5V |
| N/A | VCCAUX | T11 | VCCAUX | 2.5V |
| N/A | VCCINT | D4 | VCCINT | 1.2V |
| N/A | VCCINT | D13 | VCCINT | 1.2V |
| N/A | VCCINT | E5 | VCCINT | 1.2V |
| N/A | VCCINT | E12 | VCCINT | 1.2V |
| N/A | VCCINT | M5 | VCCINT | 1.2V |

[**www.xilinx.com**](http://www.xilinx.com)

DS099-4 (v2.4) June 25, 2008

**Product Specification**



Spartan-3 FPGA Family: Pinout Descriptions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Bank** | **XC3S200 XC3S400 XC3S1000 Pin Name** | **FT256 Pin Number** | **Type** | **Signal Name** |
| N/A | VCCINT | M12 | VCCINT | 1.2V |
| N/A | VCCINT | N4 | VCCINT | 1.2V |
| N/A | VCCINT | N13 | VCCINT | 1.2V |
| VCCAUX | CCLK | T15 | CONFIG | PROM\_CLK |
| VCCAUX | DONE | R14 | CONFIG | PROM\_CEn |
| VCCAUX | HSWAP\_EN | C4 | CONFIG | R to GND |
| VCCAUX | M0 | P3 | CONFIG | R to GND |
| VCCAUX | M1 | T2 | CONFIG | R to GND |
| VCCAUX | M2 | P4 | CONFIG | R to GND |
| VCCAUX | PROG\_B | B3 | CONFIG | PROM\_CFn |
| VCCAUX | TCK | C14 | JTAG | TCK\_X |
| VCCAUX | TDI | A2 | JTAG | TDI\_X |
| VCCAUX | TDO | A15 | JTAG | TDO\_3 |
| VCCAUX | TMS | C13 | JTAG | TMS\_X |

*Table 95:* **FT256 Package Pinout *(Continued)***

DS099-4 (v2.4) June 25, 2008 [**www.xilinx.com**](http://www.xilinx.com) **Product Specification**

Spartan-3 FPGA Family: Pinout Descriptions