



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | NC | | | | | D32 | E25 | | | | | | |
| | | TDI | | TDI | | | G28 | F24 | | | | | | |
| | | TMS | | TMS | | | H28 | H22 | | | | | | |
| | | TRST | | TRST | | | J28 | D26 | | | | | | |
| | | TCK | | TCK | | | F30 | C26 | | | | | | |
| | | TDO | | TDO | | | G29 | G24 | | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L1n | DIFFOUT L1n | G31 | F26 | | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L1p | DIFFOUT L1p | G30 | F25 | | | | | | |
| 1A | VREF1A | IO | RDN1A | | DIFFIO RX L1n | DIFFOUT L2n | E32 | C28 | | | | | | |
| 1A | VREF1A | IO | RUP1A | | DIFFIO RX L1p | DIFFOUT L2p | E31 | D27 | | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L2n | DIFFOUT L3n | J30 | G26 | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L2p | DIFFOUT L3p | J29 | G25 | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L2n | DIFFOUT L4n | F32 | B28 | DQSn1L | DQ1L | DQ1L | DQSn1L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L2p | DIFFOUT L4p | F31 | C27 | DQS1L | DQ1L/CQn1L | DQ1L | DQS1L | DQ1L/CQn1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L3n | DIFFOUT L5n | K28 | H25 | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L3p | DIFFOUT L5p | K27 | J24 | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L3n | DIFFOUT L6n | C34 | D28 | DQSn2L | DQSn1L/DQ1L | DQ1L | DQSn2L | DQSn1L/DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L3p | DIFFOUT L6p | C33 | E28 | DQS2L | DQS1L/CQ1L | DQ1L/CQn1L | DQS2L | DQS1L/CQ1L | DQ1L/CQn1L |
| 1A | VREF1A | IO | | | DIFFIO TX L4n | DIFFOUT L7n | N25 | J23 | DQ2L | DQ1L | DQ1L | DQ2L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L4p | DIFFOUT L7p | M24 | J22 | DQ2L | DQ1L | DQ1L | DQ2L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L4n | DIFFOUT L8n | H32 | F28 | DQ2L | DQ1L | DQ1L | DQ2L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L4p | DIFFOUT L8p | H31 | F27 | DQ2L | DQ1L | DQ1L | DQ2L | DQ1L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L5n | DIFFOUT L9n | M27 | K21 | DQ3L | DQ2L | DQ1L | DQ3L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L5p | DIFFOUT L9p | M26 | K20 | DQ3L | DQ2L | DQ1L | DQ3L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L5n | DIFFOUT L10n | D34 | G28 | DQSn3L | DQ2L | DQSn1L/DQ1L | DQSn3L | DQ2L | DQSn1L/DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L5p | DIFFOUT L10p | D33 | G27 | DQS3L | DQ2L/CQn2L | DQS1L/CQ1L | DQS3L | DQ2L/CQn2L | DQS1L/CQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L6n | DIFFOUT L11n | K30 | K26 | DQ3L | DQ1L | DQ1L | DQ3L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L6p | DIFFOUT L11p | K29 | K25 | DQ3L | DQ2L | DQ1L | DQ3L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L6n | DIFFOUT L12n | J32 | J26 | DQSn4L | DQSn2L/DQ2L | DQ1L | DQSn4L | DQSn2L/DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L6p | DIFFOUT L12p | J31 | J25 | DQS4L | DQS2L/CQ2L | DQ1L | DQS4L | DQS2L/CQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L7n | DIFFOUT L13n | L29 | K24 | DQ4L | DQ1L | DQ1L | DQ4L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L7p | DIFFOUT L13p | L28 | K23 | DQ4L | DQ2L | DQ1L | DQ4L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L7n | DIFFOUT L14n | E34 | H28 | DQ4L | DQ2L | DQ1L | DQ4L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO RX L7p | DIFFOUT L14p | F33 | J27 | DQ4L | DQ2L | DQ1L | DQ4L | DQ2L | DQ1L |
| 1A | VREF1A | IO | | | DIFFIO TX L8n | DIFFOUT L15n | M28 | L23 | DQ5L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L8p | DIFFOUT L15p | N27 | L22 | DQ5L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L8n | DIFFOUT L16n | F34 | J28 | DQSn5L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L8p | DIFFOUT L16p | G33 | K27 | DQS5L | DQ3L/CQn3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L9n | DIFFOUT L17n | N26 | | DQ5L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L9p | DIFFOUT L17p | P25 | | DQ5L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L9n | DIFFOUT L18n | K32 | | DQSn6L | DQSn3L/DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L9p | DIFFOUT L18p | K31 | | DQS6L | DQS3L/CQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L10n | DIFFOUT L19n | L32 | | DQ6L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L10p | DIFFOUT L19p | L31 | | DQ6L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L10n | DIFFOUT L20n | G34 | | DQ6L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L10p | DIFFOUT L20p | H34 | | DQ6L | DQ3L | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L11n | DIFFOUT L21n | N24 | | DQ7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L11p | DIFFOUT L21p | P23 | | DQ7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L11n | DIFFOUT L22n | J34 | | DQSn7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L11p | DIFFOUT L22p | J33 | | DQS7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L12n | DIFFOUT L23n | M30 | | DQ7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO TX L12p | DIFFOUT L23p | M29 | | DQ7L | | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L12n | DIFFOUT L24n | K34 | | | | | | | |
| 1A | VREF1A | IO | | | DIFFIO RX L12p | DIFFOUT L24p | K33 | | | | | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L13n | DIFFOUT L25n | N30 | | DQ8L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L13p | DIFFOUT L25p | N29 | | DQ8L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L13n | DIFFOUT L26n | N32 | | DQSn8L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L13p | DIFFOUT L26p | M31 | | DQS8L | DQ8L/CQn8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L14n | DIFFOUT L27n | P29 | | DQ8L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L14p | DIFFOUT L27p | P28 | | DQ8L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L14n | DIFFOUT L28n | L34 | | DQSn9L | DQSn8L/DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L14p | DIFFOUT L28p | M33 | | DQS9L | DQS8L/CQ8L | DQ8L/CQn8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L15n | DIFFOUT L29n | R26 | | DQ9L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L15p | DIFFOUT L29p | R25 | | DQ9L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L15n | DIFFOUT L30n | P32 | | DQ9L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L15p | DIFFOUT L30p | N31 | | DQ9L | DQ8L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L16n | DIFFOUT L31n | R24 | | DQ10L | DQ9L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO TX L16p | DIFFOUT L31p | T23 | | DQ10L | DQ9L | DQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO RX L16n | DIFFOUT L32n | M34 | | DQSn10L | DQ9L | DQS8L/DQ8L | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|---------|----------------------|----------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 1C | VREF1C | IO | | | DIFFIO_RX_L16p | DIFFOUT_L32p | N33 | | DQS10L | DQ9L/CQn9L | DQS8L/CQ8L | | | |
| 1C | VREF1C | IO | | | DIFFIO_TX_L17n | DIFFOUT_L33n | R28 | M23 | DQ10L | DQ9L | DO8L | | | |
| 1C | VREF1C | IO | | | DIFFIO_TX_L17p | DIFFOUT_L33p | R27 | M22 | DQ10L | DQ9L | DO8L | | | |
| 1C | VREF1C | IO | | | DIFFIO_RX_L17n | DIFFOUT_L34n | R32 | L26 | DQSn11L | DQSn9L/DQ9L | DO8L | DQSn11L | | |
| 1C | VREF1C | IO | | | DIFFIO_RX_L17p | DIFFOUT_L34p | P31 | L25 | DQS11L | DQSn9L/CQ9L | DO8L | DQS11L | | |
| 1C | VREF1C | IO | | CLKUSR | DIFFIO_TX_L18n | DIFFOUT_L35n | R30 | M21 | DQ11L | DQ9L | DO8L | DQ11L | | |
| 1C | VREF1C | IO | | | DIFFIO_TX_L18p | DIFFOUT_L35p | R29 | M20 | DQ11L | DQ9L | DO8L | DQ11L | | |
| 1C | VREF1C | IO | | | DIFFIO_RX_L18n | DIFFOUT_L36n | N34 | K28 | DQ11L | DQ9L | DO8L | DQ11L | | |
| 1C | VREF1C | IO | | | DIFFIO_RX_L18p | DIFFOUT_L36p | P34 | L28 | DQ11L | DQ9L | DO8L | DQ11L | | |
| 1C | VREF1C | IO | | DATA0 | DIFFIO_TX_L19n | DIFFOUT_L37n | T28 | N21 | DQ12L | DQ10L | | DQ12L | DQ11L | |
| 1C | VREF1C | IO | | DATA1 | DIFFIO_TX_L19p | DIFFOUT_L37p | T27 | N20 | DQ12L | DQ10L | | DQ12L | DQ11L | |
| 1C | VREF1C | IO | | DATA2 | DIFFIO_RX_L19n | DIFFOUT_L38n | R34 | M26 | DQSn12L | DQ10L | | DQSn12L | DQ11L | |
| 1C | VREF1C | IO | | DATA3 | DIFFIO_RX_L19p | DIFFOUT_L38p | R33 | M25 | DQS12L | DQ10L/CQn10L | | DQS12L | DQ11L/CQn11L | |
| 1C | VREF1C | IO | | DATA4 | DIFFIO_TX_L20n | DIFFOUT_L39n | T25 | N25 | DQ12L | DQ10L | | DQ12L | DQ11L | |
| 1C | VREF1C | IO | | DATA5 | DIFFIO_TX_L20p | DIFFOUT_L39p | T24 | M24 | DQ12L | DQ10L | | DQ12L | DQ11L | |
| 1C | VREF1C | IO | | DATA6 | DIFFIO_RX_L20n | DIFFOUT_L40n | T32 | M28 | DQSn13L | DQSn10L/DQ10L | | DQSn13L | DQSn11L/DQ11L | |
| 1C | VREF1C | IO | | DATA7 | DIFFIO_RX_L20p | DIFFOUT_L40p | R31 | M27 | DQS13L | DQSn10L/CQ10L | | DQS13L | DQSn11L/CQ11L | |
| 1C | VREF1C | IO | | INIT_DONE | DIFFIO_TX_L21n | DIFFOUT_L41n | T26 | N23 | DQ13L | DQ10L | | DQ13L | DQ11L | |
| 1C | VREF1C | IO | | CRC_ERROR | DIFFIO_TX_L21p | DIFFOUT_L41p | U25 | P23 | DQ13L | DQ10L | | DQ13L | DQ11L | |
| 1C | VREF1C | IO | | DEV_OE | DIFFIO_RX_L21n | DIFFOUT_L42n | U32 | P25 | DQ13L | DQ10L | | DQ13L | DQ11L | |
| 1C | VREF1C | IO | | DEV_CLRn | DIFFIO_RX_L21p | DIFFOUT_L42p | U31 | N24 | DQ13L | DQ10L | | DQ13L | DQ11L | |
| 1C | VREF1C | IO | PLL_L2_CLKOUT0n | | DIFFIO_TX_L22n | DIFFOUT_L43n | T30 | P20 | | | | | | |
| 1C | VREF1C | IO | PLL_L2_FB_CLKOUT0p | | DIFFIO_TX_L22p | DIFFOUT_L43p | T29 | P19 | | | | | | |
| 1C | VREF1C | IO | CLK0n | | DIFFIO_RX_L22n | DIFFOUT_L44n | V32 | N27 | | | | | | |
| 1C | VREF1C | IO | CLK0p | | DIFFIO_RX_L22p | DIFFOUT_L44p | V31 | N26 | | | | | | |
| 1C | VREF1C | CLK1n | CLK1n | | | | T34 | N28 | | | | | | |
| 1C | VREF1C | CLK1p | CLK1p | | | | T33 | P28 | | | | | | |
| | | VCCA_PLL_L2 | | | | | U28 | R22 | | | | | | |
| | | VCCD_PLL_L2 | | | | | U26 | P22 | | | | | | |
| | | VCCD_PLL_L3 | | | | | V26 | | | | | | | |
| | | VCCA_PLL_L3 | | | | | V28 | | | | | | | |
| 2C | VREF2C | CLK3p | CLK3p | | | | V33 | R27 | | | | | | |
| 2C | VREF2C | CLK3n | CLK3n | | | | V34 | R28 | | | | | | |
| 2C | VREF2C | IO | CLK2p | | DIFFIO_RX_L23p | DIFFOUT_L45p | W33 | U28 | | | | | | |
| 2C | VREF2C | IO | CLK2n | | DIFFIO_RX_L23n | DIFFOUT_L45n | W34 | T28 | | | | | | |
| 2C | VREF2C | IO | PLL_L3_FB_CLKOUT0p | | DIFFIO_TX_L23p | DIFFOUT_L46p | W28 | R20 | | | | | | |
| 2C | VREF2C | IO | PLL_L3_CLKOUT0n | | DIFFIO_TX_L23n | DIFFOUT_L46n | V29 | R21 | | | | | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L24p | DIFFOUT_L47p | AA33 | R26 | DQ14L | DQ17L | | DQ14L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L24n | DIFFOUT_L47n | Y34 | T27 | DQ14L | DQ17L | | DQ14L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L24p | DIFFOUT_L48p | W26 | T25 | DQ14L | DQ17L | | DQ14L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L24n | DIFFOUT_L48n | W27 | R25 | DQ14L | DQ17L | | DQ14L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L25p | DIFFOUT_L49p | Y31 | V27 | DQS14L | DQSn17L/CQ17L | | DQS14L | DQSn16L/CQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L25n | DIFFOUT_L49n | Y32 | V28 | DQSn14L | DQSn17L/DQ17L | | DQSn14L | DQSn16L/DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L25p | DIFFOUT_L50p | V24 | T20 | DQ15L | DQ17L | | DQ15L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L25n | DIFFOUT_L50n | V25 | T21 | DQ15L | DQ17L | | DQ15L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L26p | DIFFOUT_L51p | AB33 | V26 | DQS15L | DQ17L/CQn17L | | DQS15L | DQ16L/CQn16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L26n | DIFFOUT_L51n | AA34 | U26 | DQSn15L | DQ17L | | DQSn15L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L26p | DIFFOUT_L52p | W30 | T24 | DQ15L | DQ17L | | DQ15L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L26n | DIFFOUT_L52n | W31 | U25 | DQ15L | DQ17L | | DQ15L | DQ16L | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L27p | DIFFOUT_L53p | AA31 | W27 | DQ16L | DQ18L | DQ19L | DQ16L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L27n | DIFFOUT_L53n | AA32 | W28 | DQ16L | DQ18L | DQ19L | DQ16L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L27p | DIFFOUT_L54p | Y28 | T22 | DQ16L | DQ18L | DQ19L | DQ16L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L27n | DIFFOUT_L54n | Y29 | T23 | DQ16L | DQ18L | DQ19L | DQ16L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L28p | DIFFOUT_L55p | AC34 | V24 | DQS16L | DQSn18L/CQ18L | DQ19L | DQS16L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L28n | DIFFOUT_L55n | AB34 | V25 | DQSn16L | DQSn18L/DQ18L | DQ19L | DQSn16L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L28p | DIFFOUT_L56p | Y23 | V23 | DQ17L | DQ18L | DQ19L | DQ17L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L28n | DIFFOUT_L56n | W24 | U23 | DQ17L | DQ18L | DQ19L | DQ17L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L29p | DIFFOUT_L57p | AB31 | DQS17L | DQ18L/CQn18L | DQSn19L/CQ19L | | DQSn17L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L29n | DIFFOUT_L57n | AB32 | DQSn17L | DQ18L | DQSn19L/DQ19L | | DQSn17L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L29p | DIFFOUT_L58p | AA29 | DQ17L | DQ18L | DQ19L | DQ17L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L29n | DIFFOUT_L58n | AA30 | DQ17L | DQ18L | DQ19L | DQ17L | | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L30p | DIFFOUT_L59p | AD33 | DQ18L | DQ19L | DQ19L | DQ18L | | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L30n | DIFFOUT_L59n | AD34 | DQ18L | DQ19L | DQ19L | DQ18L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L30p | DIFFOUT_L60p | Y25 | DQ18L | DQ19L | DQ19L | DQ18L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L30n | DIFFOUT_L60n | Y26 | DQ18L | DQ19L | DQ19L | DQ18L | | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L31p | DIFFOUT_L61p | AC31 | DQS18L | DQSn19L/CQ19L | DQ19L/CQn19L | | DQSn18L | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L31n | DIFFOUT_L61n | AC32 | DQSn18L | DQSn19L/DQ19L | DQ19L | | DQSn18L | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L31p | DIFFOUT_L62p | AA27 | DQ19L | DQ19L | DQ19L | DQ19L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L31n | DIFFOUT_L62n | AA28 | DQ19L | DQ19L | DQ19L | DQ19L | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|-----------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 2C | VREF2C | IO | | | DIFFIO_RX_L32p | DIFFOUT_L63p | AE33 | | DQS19L | DQ19L/CQn19L | DQ19L | | | |
| 2C | VREF2C | IO | | | DIFFIO_RX_L32n | DIFFOUT_L63n | AE34 | | DQSn19L | DQ19L | DQ19L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L32p | DIFFOUT_L64p | AB29 | | DQ19L | DQ19L | DQ19L | | | |
| 2C | VREF2C | IO | | | DIFFIO_TX_L32n | DIFFOUT_L64n | AB30 | | DQ19L | DQ19L | DQ19L | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L33p | DIFFOUT_L65p | AG33 | | | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L33n | DIFFOUT_L65n | AF34 | | | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L33p | DIFFOUT_L66p | AA24 | | DQ20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L33n | DIFFOUT_L66n | AA25 | | DQ20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L34p | DIFFOUT_L67p | AE31 | | DQS20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L34n | DIFFOUT_L67n | AE32 | | DQSn20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L34p | DIFFOUT_L68p | AC28 | | DQ20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L34n | DIFFOUT_L68n | AC29 | | DQ20L | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L35p | DIFFOUT_L69p | AH33 | | DQ21L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L35n | DIFFOUT_L69n | AG34 | | DQ21L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L35p | DIFFOUT_L70p | AD30 | | DQ21L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L35n | DIFFOUT_L70n | AD31 | | DQ21L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L36p | DIFFOUT_L71p | AF31 | | DQS21L | DQS24L/CQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L36n | DIFFOUT_L71n | AF32 | | DQSn21L | DQSn24L/DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L36p | DIFFOUT_L72p | AB24 | | DQ22L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L36n | DIFFOUT_L72n | AB25 | | DQ22L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L37p | DIFFOUT_L73p | AJ34 | AA27 | DQS22L | DQ24L/CQn24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L37n | DIFFOUT_L73n | AH34 | Y28 | DQSn22L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L37p | DIFFOUT_L74p | AB26 | W22 | DQ22L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L37n | DIFFOUT_L74n | AB27 | W23 | DQ22L | DQ24L | | | | |
| 2A | VREF2A | IO | | | DIFFIO_RX_L38p | DIFFOUT_L75p | AG31 | AB27 | DQ23L | | DQ26L | DQ23L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L38n | DIFFOUT_L75n | AG32 | AA28 | DQ23L | DQ25L | DQ26L | DQ23L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L38p | DIFFOUT_L76p | AE29 | W24 | DQ23L | DQ26L | DQ26L | DQ23L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L38n | DIFFOUT_L76n | AE30 | W25 | DQ23L | DQ25L | DQ26L | DQ23L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L39p | DIFFOUT_L77p | AK33 | Y25 | DQS23L | DQS25L/CQ25L | DQ26L | DQS23L | DQS25L/CQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L39n | DIFFOUT_L77n | AK34 | Y26 | DQSn23L | DQSn25L/DQ25L | DQ26L | DQSn23L | DQSn25L/DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L39p | DIFFOUT_L78p | AD28 | V20 | DQ24L | DQ26L | DQ26L | DQ24L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L39n | DIFFOUT_L78n | AD29 | V21 | DQ24L | DQ25L | DQ26L | DQ24L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L40p | DIFFOUT_L79p | AJ31 | AC28 | DQS24L | DQ25L/CQn25L | DQS26L/CQ26L | DQS24L | DQ25L/CQn25L | DQS26L/CQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L40n | DIFFOUT_L79n | AJ32 | AB28 | DQSn24L | DQ25L | DQSn26L/DQ26L | DQSn24L | DQ25L | DQSn26L/DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L40p | DIFFOUT_L80p | AF28 | AA25 | DQ24L | DQ26L | DQ26L | DQ24L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L40n | DIFFOUT_L80n | AF29 | AA26 | DQ24L | DQ25L | DQ26L | DQ24L | DQ25L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L41p | DIFFOUT_L81p | AM34 | AB25 | DQ25L | DQ26L | DQ26L | DQ25L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L41n | DIFFOUT_L81n | AL34 | AB26 | DQ25L | DQ26L | DQ26L | DQ25L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L41p | DIFFOUT_L82p | AE27 | AC25 | DQ25L | DQ26L | DQ26L | DQ25L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L41n | DIFFOUT_L82n | AE28 | AC26 | DQ25L | DQ26L | DQ26L | DQ25L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L42p | DIFFOUT_L83p | AH30 | AD27 | DQS25L | DQS26L/CQ26L | DQ26L/CQn26L | DQS25L | DQS26L/CQ26L | DQ26L/CQn26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L42n | DIFFOUT_L83n | AH31 | AD28 | DQSn25L | DQSn26L/DQ26L | DQ26L | DQSn25L | DQSn26L/DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L42p | DIFFOUT_L84p | AD26 | W20 | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L42n | DIFFOUT_L84n | AD27 | W21 | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L43p | DIFFOUT_L85p | AL32 | AG28 | DQS26L | DQ26L/CQn26L | DQ26L | DQS26L | DQ26L/CQn26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_RX_L43n | DIFFOUT_L85n | AL33 | AF28 | DQSn26L | DQ26L | DQ26L | DQSn26L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L43p | DIFFOUT_L86p | AC25 | Y23 | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L |
| 2A | VREF2A | IO | | | DIFFIO_TX_L43n | DIFFOUT_L86n | AC26 | AA24 | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L | DQ26L |
| 2A | VREF2A | IO | RUP2A | | DIFFIO_RX_L44p | DIFFOUT_L87p | AK31 | AE27 | | | | | | |
| 2A | VREF2A | IO | RDN2A | | DIFFIO_RX_L44n | DIFFOUT_L87n | AK32 | AE28 | | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L44p | DIFFOUT_L88p | AG29 | AA23 | | | | | | |
| 2A | VREF2A | IO | | | DIFFIO_TX_L44n | DIFFOUT_L88n | AG30 | AB24 | | | | | | |
| | nCONFIG | | | nCONFIG | | | AE25 | W19 | | | | | | |
| | nSTATUS | | | nSTATUS | | | AH28 | AD25 | | | | | | |
| | CONF_DONE | | | CONF_DONE | | | AH29 | AE26 | | | | | | |
| | PORSEL | | | PORSEL | | | AF26 | AB23 | | | | | | |
| | nCE | | | nCE | | | AE26 | Y20 | | | | | | |
| | NC | | | | | | AL31 | AB22 | | | | | | |
| 3A | VREF3A | IO | | | | DIFFOUT_B1n | AH27 | AF26 | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B1p | AJ27 | AH27 | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B |
| 3A | VREF3A | IO | RDN3A | | DIFFIO_RX_B1n | DIFFOUT_B2n | AK28 | AH25 | DQSn1B | DQ1B | DQ1B | DQSn1B | DQ1B | DQ1B |
| 3A | VREF3A | IO | RUP3A | | DIFFIO_RX_B1p | DIFFOUT_B2p | AJ28 | AG25 | DQS1B | DQ1B/CQn1B | DQ1B | DQS1B | DQ1B/CQn1B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B3n | AJ29 | AG27 | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B3p | AJ26 | AH26 | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B2n | DIFFOUT_B4n | AM32 | AE22 | DQSn2B | DQSn1B/DQ1B | DQ1B | DQSn2B | DQSn1B/DQ1B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B2p | DIFFOUT_B4p | AM31 | AD22 | DQS2B | DQS1B/CQ1B | DQ1B/CQn1B | DQS2B | DQS1B/CQ1B | DQ1B/CQn1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B5n | AL29 | AB20 | DQ2B | DQ1B | DQ1B | DQ2B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B5p | AM29 | AB21 | DQ2B | DQ1B | DQ1B | DQ2B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B3n | DIFFOUT_B6n | AN30 | AD21 | DQ2B | DQ1B | DQ1B | DQ2B | DQ1B | DQ1B |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 3A | VREF3A | IO | | | DIFFIO_RX_B3p | DIFFOUT_B6p | AM30 | AC21 | DQ2B | DQ1B | DQ1B | DQ2B | DQ1B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B7n | AH26 | AD24 | DQ3B | DQ2B | DQ1B | DQ3B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B7p | AF24 | AE23 | DQ3B | DQ2B | DQ1B | DQ3B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B4n | | AH24 | AF24 | DQSn3B | | | DQSn3B | DQ2B | DQSn1B/DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B4p | DIFFOUT_B8p | AG24 | AE24 | DQS3B | DQ2B/CQn2B | DQSn1B/CQ1B | DQS3B | DQ2B/CQn2B | DQSn1B/CQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B9n | AH25 | AF23 | DQ3B | DQ2B | DQ1B | DQ3B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B9p | AF23 | AG24 | DQ3B | DQ2B | DQ1B | DQ3B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B5n | DIFFOUT_B10n | AP33 | AH24 | DQSn4B | DQSn2B/DQ2B | | DQSn4B | DQSn2B/DQ2B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B5p | DIFFOUT_B10p | AN33 | AH23 | DQS4B | DQS2B/CQ2B | DQ1B | DQS4B | DQS2B/CQ2B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B11n | AP32 | AH20 | DQ4B | DQ2B | DQ1B | DQ4B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B11p | AP30 | AH21 | DQ4B | DQ2B | DQ1B | DQ4B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B6n | DIFFOUT_B12n | AP31 | AH22 | DQ4B | DQ2B | DQ1B | DQ4B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | DIFFIO_RX_B6p | DIFFOUT_B12p | AN31 | AG22 | DQ4B | DQ2B | DQ1B | DQ4B | DQ2B | DQ1B |
| 3A | VREF3A | IO | | | | DIFFOUT_B13n | AK27 | AC20 | DQ5B | DQ3B | | DQ5B | DQ3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B13p | AL28 | AG21 | DQ5B | DQ3B | | DQ5B | DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B7n | DIFFOUT_B14n | AL27 | AF21 | DQSn5B | | | DQSn5B | DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B7p | DIFFOUT_B14p | AL26 | AE21 | DQSn5B | DQ3B/CQn3B | | DQSn5B | DQ3B/CQn3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B15n | AK25 | AF20 | DQ5B | DQ3B | | DQ5B | DQ3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B15p | AM26 | AE20 | DQ5B | DQ3B | | DQ5B | DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B8n | DIFFOUT_B16n | AP28 | AD19 | DQSn6B | DQSn3B/DQ3B | | DQSn6B | DQSn3B/DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B8p | DIFFOUT_B16p | AN28 | AC19 | DQS6B | DQS3B/CQ3B | | DQS6B | DQS3B/CQ3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B17n | AM28 | AB19 | DQ6B | DQ3B | | DQ6B | DQ3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B17p | AP29 | AA19 | DQ6B | DQ3B | | DQ6B | DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B9n | DIFFOUT_B18n | AP27 | AE19 | DQ6B | DQ3B | | DQ6B | DQ3B | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B9p | DIFFOUT_B18p | AN27 | AD18 | DQ6B | DQ3B | | DQ6B | DQ3B | |
| 3A | VREF3A | IO | | | | DIFFOUT_B19n | AE24 | Y19 | | | | | | |
| 3A | VREF3A | IO | | | | DIFFOUT_B19p | AE23 | AA18 | | | | | | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B10n | DIFFOUT_B20n | AD22 | Y18 | | | | | | |
| 3A | VREF3A | IO | | | DIFFIO_RX_B10p | DIFFOUT_B20p | AC22 | Y17 | | | | | | |
| 3B | VREF3B | IO | | | | DIFFOUT_B21n | AH23 | | DQ7B | DQ7B | | DQ7B | | |
| 3B | VREF3B | IO | | | | DIFFOUT_B21p | AJ24 | | DQ7B | DQ7B | | DQ7B | | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B11n | DIFFOUT_B22n | AJ22 | | DQSn7B | DQ7B | | DQSn7B | DQ7B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B11p | DIFFOUT_B22p | AH22 | | DQS7B | DQ7B/CQn7B | | DQS7B | DQ7B/CQn7B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B23n | AJ23 | | DQ7B | DQ7B | | DQ7B | | |
| 3B | VREF3B | IO | | | | DIFFOUT_B23p | AK22 | | DQ7B | DQ7B | | DQ7B | | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B12n | DIFFOUT_B24n | AM24 | | DQSn8B | DQSn7B/DQ7B | | DQSn8B | DQSn7B/DQ7B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B12p | DIFFOUT_B24p | AL24 | | DQS8B | DQS7B/CQ7B | | DQS8B | DQS7B/CQ7B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B25n | AK24 | | DQ8B | DQ7B | | DQ8B | DQ7B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B25p | AL25 | | DQ8B | DQ7B | | DQ8B | DQ7B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B13n | DIFFOUT_B26n | AM23 | | DQ8B | DQ7B | | DQ8B | DQ7B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B13p | DIFFOUT_B26p | AL23 | | DQ8B | DQ7B | | DQ8B | DQ7B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B27n | AE22 | | DQ9B | DQ8B | | DQ9B | DQ8B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B27p | AE21 | | DQ9B | DQ8B | | DQ9B | DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B14n | DIFFOUT_B28n | AG21 | | DQSn9B | DQ8B | | DQSn9B | DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B14p | DIFFOUT_B28p | AF21 | | DQS9B | DQ8B/CQn8B | | DQS9B | DQ8B/CQn8B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B29n | AD21 | | DQ9B | DQ8B | | DQ9B | DQ8B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B29p | AE20 | | DQ9B | DQ8B | | DQ9B | DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B15n | DIFFOUT_B30n | AP25 | | DQSn10B | DQSn8B/DQ8B | | DQSn10B | DQSn8B/DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B15p | DIFFOUT_B30p | AN25 | | DQS10B | DQS8B/CQ8B | | DQS10B | DQS8B/CQ8B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B31n | AP26 | | DQ10B | DQ8B | | DQ10B | DQ8B | |
| 3B | VREF3B | IO | | | | DIFFOUT_B31p | AP23 | | DQ10B | DQ8B | | DQ10B | DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B16n | DIFFOUT_B32n | AP24 | | DQ10B | DQ8B | | DQ10B | DQ8B | |
| 3B | VREF3B | IO | | | DIFFIO_RX_B16p | DIFFOUT_B32p | AN24 | | DQ10B | DQ8B | | DQ10B | DQ8B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B33n | AL22 | AF19 | DQ11B | DQ11B | | DQ11B | DQ11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B33p | AM22 | AG19 | DQ11B | DQ11B | | DQ11B | DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B17n | DIFFOUT_B34n | AL21 | AH19 | DQSn11B | DQ11B | | DQSn11B | DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B17p | DIFFOUT_B34p | AK21 | AG18 | DQS11B | DQ11B/CQn11B | | DQS11B | DQ11B/CQn11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B35n | AJ20 | AH17 | DQ11B | DQ11B | | DQ11B | DQ11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B35p | AJ21 | AH18 | DQ11B | DQ11B | | DQ11B | DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B18n | DIFFOUT_B36n | AP22 | AF17 | DQSn12B | DQSn11B/DQ11B | | DQSn12B | DQSn11B/DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B18p | DIFFOUT_B36p | AN22 | AE18 | DQS12B | DQS11B/CQ11B | | DQS12B | DQS11B/CQ11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B37n | AM21 | AE16 | DQ12B | DQ11B | | DQ12B | DQ11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B37p | AP20 | AD16 | DQ12B | DQ11B | | DQ12B | DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B19n | DIFFOUT_B38n | AP21 | AF16 | DQ12B | DQ11B | | DQ12B | DQ11B | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B19p | DIFFOUT_B38p | AN21 | AE17 | DQ12B | DQ11B | | DQ12B | DQ11B | |
| 3C | VREF3C | IO | | | | DIFFOUT_B39n | AL20 | | DQ13B | | | DQ13B | | |
| 3C | VREF3C | IO | | | | DIFFOUT_B39p | AM18 | | DQ13B | | | DQ13B | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B20n | DIFFOUT_B40n | AM19 | | DQSn13B | | | DQSn13B | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B20p | DIFFOUT_B40p | AL19 | | DQS13B | | | DQS13B | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 3C | VREF3C | IO | | | | DIFFOUT_B41n | AK18 | | DQ13B | | | | | |
| 3C | VREF3C | IO | | | | DIFFOUT_B41p | AL18 | | DQ13B | | | | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B21n | DIFFOUT_B42n | AF20 | | | | | | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B21p | DIFFOUT_B42p | AF19 | | | | | | | |
| 3C | VREF3C | IO | PLL_B1_CLKOUT4 | | | DIFFOUT_B43n | AE19 | AC17 | | | | | | |
| 3C | VREF3C | IO | PLL_B1_CLKOUT3 | | | DIFFOUT_B43p | AD19 | AB17 | | | | | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B22n | DIFFOUT_B44n | AH19 | AC16 | | | | | | |
| 3C | VREF3C | IO | | | DIFFIO_RX_B22p | DIFFOUT_B44p | AG19 | AB16 | | | | | | |
| 3C | VREF3C | IO | PLL_B1_CLKOUT0n | | | DIFFOUT_B45n | AE18 | AA15 | | | | | | |
| 3C | VREF3C | IO | PLL_B1_CLKOUT0p | | | DIFFOUT_B45p | AD18 | Y15 | | | | | | |
| 3C | VREF3C | IO | PLL_B1_FBn/CLKOUT2 | | DIFFIO_RX_B23n | DIFFOUT_B46n | AK19 | AH16 | | | | | | |
| 3C | VREF3C | IO | PLL_B1_FBp/CLKOUT1 | | DIFFIO_RX_B23p | DIFFOUT_B46p | AJ19 | AG16 | | | | | | |
| 3C | VREF3C | IO | CLK5n | | | DIFFOUT_B47n | AP19 | AH15 | | | | | | |
| 3C | VREF3C | IO | CLK5p | | | DIFFOUT_B47p | AN19 | AG15 | | | | | | |
| 3C | VREF3C | IO | CLK4n | | DIFFIO_RX_B24n | DIFFOUT_B48n | AP18 | AF15 | | | | | | |
| 3C | VREF3C | IO | CLK4p | | DIFFIO_RX_B24p | DIFFOUT_B48p | AN18 | AE15 | | | | | | |
| | | VCC_CLKIN3C | | | | | | | | | | | | |
| | | VCCA_PLL_B1 | | | | | AH18 | AC14 | | | | | | |
| | | VCCD_PLL_B1 | | | | | AF18 | AB15 | | | | | | |
| | | VCCD_PLL_B2 | | | | | AF17 | | | | | | | |
| | | VCCA_PLL_B2 | | | | | AH17 | | | | | | | |
| | | VCC_CLKIN4C | | | | | AE17 | AC13 | | | | | | |
| 4C | VREF4C | IO | CLK6p | | DIFFIO_RX_B25p | DIFFOUT_B49p | AN16 | AE14 | | | | | | |
| 4C | VREF4C | IO | CLK6n | | DIFFIO_RX_B25n | DIFFOUT_B49n | AP16 | AF14 | | | | | | |
| 4C | VREF4C | IO | CLK7p | | | DIFFOUT_B50p | AN15 | AG13 | | | | | | |
| 4C | VREF4C | IO | CLK7n | | | DIFFOUT_B50n | AP15 | AH14 | | | | | | |
| 4C | VREF4C | IO | PLL_B2_FBp/CLKOUT1 | | DIFFIO_RX_B26p | DIFFOUT_B51p | AL17 | | | | | | | |
| 4C | VREF4C | IO | PLL_B2_FBn/CLKOUT2 | | DIFFIO_RX_B26n | DIFFOUT_B51n | AM17 | | | | | | | |
| 4C | VREF4C | IO | PLL_B2_CLKOUT0p | | | DIFFOUT_B52p | AE16 | | | | | | | |
| 4C | VREF4C | IO | PLL_B2_CLKOUT0n | | | DIFFOUT_B52n | AF16 | | | | | | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B27p | DIFFOUT_B53p | AL16 | | | | | | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B27n | DIFFOUT_B53n | AM16 | | | | | | | |
| 4C | VREF4C | IO | PLL_B2_CLKOUT3 | | | DIFFOUT_B54p | AD15 | | | | | | | |
| 4C | VREF4C | IO | PLL_B2_CLKOUT4 | | | DIFFOUT_B54n | AD16 | | | | | | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B28p | DIFFOUT_B55p | AJ16 | AG12 | | | | | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B28n | DIFFOUT_B55n | AK16 | AH13 | | | | | | |
| 4C | VREF4C | IO | | | | DIFFOUT_B56p | AL15 | Y13 | DQ14B | | | DQ14B | | |
| 4C | VREF4C | IO | | | | DIFFOUT_B56n | AM15 | Y14 | DQ14B | | | DQ14B | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B29p | DIFFOUT_B57p | AL14 | AD13 | DQS14B | | | DQS14B | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B29n | DIFFOUT_B57n | AM14 | AE13 | DQSn14B | | | DQSn14B | | |
| 4C | VREF4C | IO | | | | DIFFOUT_B58p | AK13 | AA13 | DQ14B | | | DQ14B | | |
| 4C | VREF4C | IO | | | | DIFFOUT_B58n | AL13 | AB13 | DQ14B | | | DQ14B | | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B30p | DIFFOUT_B59p | AH15 | AG10 | DQ15B | DQ16B | | DQ15B | DQ16B | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B30n | DIFFOUT_B59n | AJ15 | AH10 | DQ15B | DQ16B | | DQ15B | DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B60p | AG15 | AH11 | DQ15B | DQ16B | | DQ15B | DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B60n | AK15 | AH12 | DQ15B | DQ16B | | DQ15B | DQ16B | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B31p | DIFFOUT_B61p | AH14 | AF10 | DQS15B | DQS16B/CQ16B | | DQS15B | DQS16B/CQ16B | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B31n | DIFFOUT_B61n | AJ14 | AF11 | DQSn15B | DQSn16B/DQ16B | | DQSn15B | DQSn16B/DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B62p | AP14 | AF12 | DQ16B | DQ16B | | DQ16B | DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B62n | AN13 | AC12 | DQ16B | DQ16B | | DQ16B | DQ16B | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B32p | DIFFOUT_B63p | AN12 | AD12 | DQS16B | DQ16B/CQn16B | | DQS16B | DQ16B/CQn16B | |
| 4C | VREF4C | IO | | | DIFFIO_RX_B32n | DIFFOUT_B63n | AP12 | AE12 | DQSn16B | DQ16B | | DQSn16B | DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B64p | AM12 | AC11 | DQ16B | DQ16B | | DQ16B | DQ16B | |
| 4C | VREF4C | IO | | | | DIFFOUT_B64n | AP13 | AE11 | DQ16B | DQ16B | | DQ16B | DQ16B | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B33p | DIFFOUT_B65p | AN10 | | DQ17B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B33n | DIFFOUT_B65n | AP10 | | DQ17B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B66p | AP9 | | DQ17B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B66n | AP11 | | DQ17B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B34p | DIFFOUT_B67p | AM9 | | DQS17B | DQS19B/CQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B34n | DIFFOUT_B67n | AN9 | | DQSn17B | DQSn19B/DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B68p | AE15 | | DQ18B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B68n | AF15 | | DQ18B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B35p | DIFFOUT_B69p | AF13 | | DQS18B | DQ19B/CQn19B | DQS20B/CQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B35n | DIFFOUT_B69n | AF14 | | DQSn18B | DQ19B | DQS20B/DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B70p | AE13 | | DQ18B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B70n | AE14 | | DQ18B | DQ19B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B36p | DIFFOUT_B71p | AK12 | | DQ19B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B36n | DIFFOUT_B71n | AL12 | | DQ19B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B72p | AK10 | | DQ19B | DQ20B | DQ20B | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 4B | VREF4B | IO | | | | DIFFOUT_B72n | AM11 | | DQ19B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B37p | DIFFOUT_B73p | AL10 | | DQS19B | DQS20B/CQ20B | DQ20B/CQn20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B37n | DIFFOUT_B73n | AL11 | | DQS19B | DQS20B/CQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B74p | AM8 | | DQ20B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B74n | AP8 | | DQ20B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B38p | DIFFOUT_B75p | AN7 | | DQS20B | DQ20B/CQn20B | DQ20B | | | |
| 4B | VREF4B | IO | | | DIFFIO_RX_B38n | DIFFOUT_B75n | AP7 | | DQS20B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B76p | AP6 | | DQ20B | DQ20B | DQ20B | | | |
| 4B | VREF4B | IO | | | | DIFFOUT_B76n | AM7 | | DQ20B | DQ20B | DQ20B | | | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B39p | DIFFOUT_B77p | AC12 | AB11 | | | | | | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B39n | DIFFOUT_B77n | AD12 | AC10 | | | | | | |
| 4A | VREF4A | IO | | | | DIFFOUT_B78p | AE12 | Y10 | | | | | | |
| 4A | VREF4A | IO | | | | DIFFOUT_B78n | AD13 | Y11 | | | | | | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B40p | DIFFOUT_B79p | AH12 | AG9 | DQ21B | DQ24B | | DQ21B | DQ24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B40n | DIFFOUT_B79n | AJ12 | AH8 | DQ21B | DQ24B | | DQ21B | DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B80p | AG12 | AE10 | DQ21B | DQ24B | | DQ21B | DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B80n | AJ13 | AH9 | DQ21B | DQ24B | | DQ21B | DQ24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B41p | DIFFOUT_B81p | AH11 | AE9 | DQS21B | DQS24B/CQ24B | | DQS21B | DQS24B/CQ24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B41n | DIFFOUT_B81n | AJ11 | AF9 | DQS21B | DQS24B/DQ24B | | DQS21B | DQS24B/DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B82p | AJ10 | AF8 | DQ22B | DQ24B | | DQ22B | DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B82n | AL8 | AE8 | DQ22B | DQ24B | | DQ22B | DQ24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B42p | DIFFOUT_B83p | AK9 | AG7 | DQS22B | DQ24B/CQn24B | | DQS22B | DQ24B/CQn24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B42n | DIFFOUT_B83n | AL9 | AH7 | DQS22B | DQ24B | | DQS22B | DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B84p | AL7 | AG6 | DQ22B | DQ24B | | DQ22B | DQ24B | |
| 4A | VREF4A | IO | | | | DIFFOUT_B84n | AJ9 | AH6 | DQ22B | DQ24B | | DQ22B | DQ24B | |
| 4A | VREF4A | IO | | | DIFFIO_RX_B43p | DIFFOUT_B85p | AN4 | AG4 | DQ23B | DQ25B | DQ26B | DQ23B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B43n | DIFFOUT_B85n | AP4 | AH3 | DQ23B | DQ25B | DQ26B | DQ23B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B86p | AP2 | AH4 | DQ23B | DQ25B | DQ26B | DQ23B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B86n | AP5 | AH5 | DQ23B | DQ25B | DQ26B | DQ23B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B44p | DIFFOUT_B87p | AN3 | AG3 | DQS23B | DQS25B/CQ25B | DQ26B | DQS23B | DQS25B/CQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B44n | DIFFOUT_B87n | AP3 | AH2 | DQS23B | DQS25B/DQ25B | DQ26B | DQS23B | DQS25B/DQ25B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B88p | AM6 | AD9 | DQ24B | DQ25B | DQ26B | DQ24B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B88n | AN6 | AC9 | DQ24B | DQ25B | DQ26B | DQ24B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B45p | DIFFOUT_B89p | AL5 | AA9 | DQS24B | DQ25B/CQn25B | DQS26B/CQ26B | DQS24B | DQ25B/CQn25B | DQS26B/CQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B45n | DIFFOUT_B89n | AM5 | AB9 | DQS24B | DQ25B | DQS26B/DQ26B | DQS24B | DQ25B | DQS26B/DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B90p | AL4 | Y9 | DQ24B | DQ25B | DQ26B | DQ24B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B46p | DIFFOUT_B91p | AM4 | AA10 | DQ24B | DQ25B | DQ26B | DQ24B | DQ25B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B46n | DIFFOUT_B91n | AJ7 | AE6 | DQ25B | DQ26B | DQ26B | DQ25B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B92p | AJ6 | AE4 | DQ25B | DQ26B | DQ26B | DQ25B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B92n | AK6 | AE7 | DQ25B | DQ26B | DQ26B | DQ25B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B47p | DIFFOUT_B93p | AH8 | AE5 | DQS25B | DQS26B/CQ26B | DQ26B/CQn26B | DQS25B | DQS26B/CQ26B | DQ26B/CQn26B |
| 4A | VREF4A | IO | | | DIFFIO_RX_B47n | DIFFOUT_B93n | AJ8 | AF5 | DQS25B | DQS26B/DQ26B | DQ26B | DQS25B | DQS26B/DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B94p | AE11 | AB8 | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B94n | AF11 | AC8 | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B |
| 4A | VREF4A | IO | RUP4A | | DIFFIO_RX_B48p | DIFFOUT_B95p | AG9 | AC7 | DQS26B | DQ26B/CQn26B | DQ26B | DQS26B | DQ26B/CQn26B | DQ26B |
| 4A | VREF4A | IO | RDN4A | | DIFFIO_RX_B48n | DIFFOUT_B95n | AH9 | AD7 | DQS26B | DQ26B | DQ26B | DQS26B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B96p | AE10 | AB7 | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B |
| 4A | VREF4A | IO | | | | DIFFOUT_B96n | AF10 | AD6 | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B | DQ26B |
| | | NC | | | | | AH7 | W10 | | | | | | |
| | | GND | | | | | AF9 | AF3 | | | | | | |
| | | nIO_PULLUP | | nIO_PULLUP | | | AF8 | AE3 | | | | | | |
| | | nCEO | | nCEO | | | AJ5 | AB5 | | | | | | |
| | | DCLK | | DCLK | | | AL3 | AC5 | | | | | | |
| | | nCSO | | nCSO | | | AE9 | AD4 | | | | | | |
| | | ASDO | | ASDO | | | AH6 | AA6 | | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R1n | DIFFOUT_R1n | AH4 | AC3 | | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R1p | DIFFOUT_R1p | AH5 | AC4 | | | | | | |
| 5A | VREF5A | IO | RDN5A | | DIFFIO_RX_R1n | DIFFOUT_R2n | AK3 | AF1 | | | | | | |
| 5A | VREF5A | IO | RUP5A | | DIFFIO_RX_R1p | DIFFOUT_R2p | AK4 | AE2 | | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R2n | DIFFOUT_R3n | AE7 | AB3 | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R2p | DIFFOUT_R3p | AE8 | AB4 | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R2n | DIFFOUT_R4n | AM1 | AG1 | DQS1R | DQ1R | DQ1R | DQS1R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R2p | DIFFOUT_R4p | AM2 | AF2 | DQS1R | DQ1R/CQn1R | DQ1R | DQS1R | DQ1R/CQn1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R3n | DIFFOUT_R5n | AF5 | Y6 | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R3p | DIFFOUT_R5p | AF6 | Y7 | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R3n | DIFFOUT_R6n | AJ3 | AE1 | DQS2R | DQS1R/DQ1R | DQ1R | DQS2R | DQS1R/DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R3p | DIFFOUT_R6p | AJ4 | AD1 | DQS2R | DQS1R/CQ1R | DQ1R/CQn1R | DQS2R | DQS1R/CQ1R | DQ1R/CQn1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R4n | DIFFOUT_R7n | AC8 | AA4 | DQ2R | DQ1R | DQ1R | DQ2R | DQ1R | DQ1R |



Pin Information for the Stratix[®] III EP3SE110 Device
Version 1.1

| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 5A | VREF5A | IO | | | DIFFIO_TX_R4p | DIFFOUT_R7p | AC9 | Y5 | DQ2R | DQ1R | DQ1R | DQ2R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R4n | DIFFOUT_R8n | AL1 | AC1 | DQ2R | DQ1R | DQ1R | DQ2R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R4p | DIFFOUT_R8p | AL2 | AC2 | DQ2R | DQ1R | DQ1R | DQ2R | DQ1R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R5n | DIFFOUT_R9n | AE5 | Y3 | DQ3R | DQ2R | DQ1R | DQ3R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R5p | DIFFOUT_R9p | AE6 | Y4 | DQ3R | DQ2R | DQ1R | DQ3R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R5n | DIFFOUT_R10n | AG3 | AB1 | DQSn3R | DQ2R | DQSn1R/DQ1R | DQSn3R | DQ2R | DQSn1R/DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R5p | DIFFOUT_R10p | AG4 | AB2 | DQSn3R | DQ2R/CQn2R | DQSn1R/CQ1R | DQSn3R | DQ2R/CQn2R | DQSn1R/CQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R6n | DIFFOUT_R11n | AB10 | W8 | DQ3R | DQ2R | DQ1R | DQ3R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R6p | DIFFOUT_R11p | AC11 | W9 | DQ3R | DQ2R | DQ1R | DQ3R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R6n | DIFFOUT_R12n | AK1 | AA1 | DQSn4R | DQSn2R/DQ2R | DQ1R | DQSn4R | DQSn2R/DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R6p | DIFFOUT_R12p | AJ2 | Y2 | DQSn4R | DQSn2R/CQ2R | DQ1R | DQSn4R | DQSn2R/CQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R7n | DIFFOUT_R13n | AD6 | W5 | DQ4R | DQ2R | DQ1R | DQ4R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R7p | DIFFOUT_R13p | AD7 | W6 | DQ4R | DQ2R | DQ1R | DQ4R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R7n | DIFFOUT_R14n | AJ1 | Y1 | DQ4R | DQ2R | DQ1R | DQ4R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_RX_R7p | DIFFOUT_R14p | AH2 | W2 | DQ4R | DQ2R | DQ1R | DQ4R | DQ2R | DQ1R |
| 5A | VREF5A | IO | | | DIFFIO_TX_R8n | DIFFOUT_R15n | AC7 | V6 | DQ5R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R8p | DIFFOUT_R15p | AB8 | V7 | DQ5R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R8n | DIFFOUT_R16n | AF3 | W3 | DQSn5R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R8p | DIFFOUT_R16p | AF4 | W4 | DQSn5R | DQ3R/CQn3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R9n | DIFFOUT_R17n | AB9 | | DQ5R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R9p | DIFFOUT_R17p | AA10 | | DQ5R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R9n | DIFFOUT_R18n | AH1 | | DQSn6R | DQSn3R/DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R9p | DIFFOUT_R18p | AG1 | | DQSn6R | DQSn3R/CQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R10n | DIFFOUT_R19n | AC5 | | DQ6R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R10p | DIFFOUT_R19p | AC6 | | DQ6R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R10n | DIFFOUT_R20n | AF1 | | DQ6R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R10p | DIFFOUT_R20p | AF2 | | DQ6R | DQ3R | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R11n | DIFFOUT_R21n | AB11 | | DQ7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R11p | DIFFOUT_R21p | AA12 | | DQ7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R11n | DIFFOUT_R22n | AE3 | | DQSn7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R11p | DIFFOUT_R22p | AE4 | | DQSn7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R12n | DIFFOUT_R23n | AD3 | | DQ7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_TX_R12p | DIFFOUT_R23p | AD4 | | DQ7R | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R12n | DIFFOUT_R24n | AE1 | | | | | | | |
| 5A | VREF5A | IO | | | DIFFIO_RX_R12p | DIFFOUT_R24p | AE2 | | | | | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R13n | DIFFOUT_R25n | AB5 | | DQ8R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R13p | DIFFOUT_R25p | AB6 | | DQ8R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R13n | DIFFOUT_R26n | AB3 | | DQSn8R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R13p | DIFFOUT_R26p | AC4 | | DQSn8R | DQ8R/CQn8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R14n | DIFFOUT_R27n | AA6 | | DQ8R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R14p | DIFFOUT_R27p | AA7 | | DQ8R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R14n | DIFFOUT_R28n | AD1 | | DQSn9R | DQSn8R/DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R14p | DIFFOUT_R28p | AC2 | | DQSn9R | DQSn8R/CQ8R | DQ8R/CQn8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R15n | DIFFOUT_R29n | Y9 | | DQ9R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R15p | DIFFOUT_R29p | Y10 | | DQ9R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R15n | DIFFOUT_R30n | AA3 | | DQ9R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R15p | DIFFOUT_R30p | AB4 | | DQ9R | DQ8R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R16n | DIFFOUT_R31n | Y7 | | DQ10R | DQ9R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R16p | DIFFOUT_R31p | Y8 | | DQ10R | DQ9R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R16n | DIFFOUT_R32n | AC1 | | DQSn10R | DQ9R | DQSn8R/DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R16p | DIFFOUT_R32p | AB2 | | DQSn10R | DQ9R/CQn9R | DQSn8R/CQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R17n | DIFFOUT_R33n | Y11 | U6 | DQ10R | DQ9R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R17p | DIFFOUT_R33p | W12 | U7 | DQ10R | DQ9R | DQ8R | | | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R17n | DIFFOUT_R34n | Y3 | V3 | DQSn11R | DQSn9R/DQ9R | DQ8R | | DQSn11R | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R17p | DIFFOUT_R34p | AA4 | V4 | DQSn11R | DQSn9R/CQ9R | DQ8R | | DQSn11R | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R18n | DIFFOUT_R35n | Y5 | U8 | DQ11R | DQ9R | DQ8R | | DQ11R | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R18p | DIFFOUT_R35p | Y6 | U9 | DQ11R | DQ9R | DQ8R | | DQ11R | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R18n | DIFFOUT_R36n | AB1 | W1 | DQ11R | DQ9R | DQ8R | | DQ11R | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R18p | DIFFOUT_R36p | AA1 | V1 | DQ11R | DQ9R | DQ8R | | DQ11R | |
| 5C | VREF5C | IO | | | DIFFIO_TX_R19n | DIFFOUT_R37n | W7 | T4 | DQ12R | DQ10R | | DQ12R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_TX_R19p | DIFFOUT_R37p | W8 | U5 | DQ12R | DQ10R | | DQ12R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_RX_R19n | DIFFOUT_R38n | W3 | U3 | DQSn12R | DQ10R | | DQSn12R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_RX_R19p | DIFFOUT_R38p | Y4 | U4 | DQSn12R | DQ10R/CQn10R | | DQSn12R | | DQ11R/CQn11R |
| 5C | VREF5C | IO | | | DIFFIO_TX_R20n | DIFFOUT_R39n | W10 | T8 | DQ12R | DQ10R | | DQ12R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_TX_R20p | DIFFOUT_R39p | W11 | T9 | DQ12R | DQ10R | | DQ12R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_RX_R20n | DIFFOUT_R40n | Y1 | T2 | DQSn13R | DQSn10R/DQ10R | | DQSn13R | | DQSn11R/DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_RX_R20p | DIFFOUT_R40p | Y2 | T3 | DQSn13R | DQSn10R/CQ10R | | DQSn13R | | DQSn11R/CQ11R |
| 5C | VREF5C | IO | | | DIFFIO_TX_R21n | DIFFOUT_R41n | W5 | T6 | DQ13R | DQ10R | | DQ13R | | DQ11R |
| 5C | VREF5C | IO | | | DIFFIO_TX_R21p | DIFFOUT_R41p | W6 | R6 | DQ13R | DQ10R | | DQ13R | | DQ11R |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 5C | VREF5C | IO | | | DIFFIO_RX_R21n | DIFFOUT_R42n | V3 | R4 | DQ13R | DQ10R | | DQ13R | DQ11R | |
| 5C | VREF5C | IO | | | DIFFIO_RX_R21p | DIFFOUT_R42p | V4 | T5 | DQ13R | DQ10R | | DQ13R | DQ11R | |
| 5C | VREF5C | IO | PLL_R3_CLKOUT0n | | DIFFIO_TX_R22n | DIFFOUT_R43n | W9 | R9 | | | | | | |
| 5C | VREF5C | IO | PLL_R3_FB_CLKOUT0p | | DIFFIO_TX_R22p | DIFFOUT_R43p | V10 | R10 | | | | | | |
| 5C | VREF5C | IO | CLK9n | | DIFFIO_RX_R22n | DIFFOUT_R44n | U3 | U1 | | | | | | |
| 5C | VREF5C | IO | CLK9p | | DIFFIO_RX_R22p | DIFFOUT_R44p | U4 | U2 | | | | | | |
| 5C | VREF5C | CLK8n | CLK8n | | | | W1 | T1 | | | | | | |
| 5C | VREF5C | CLK8p | CLK8p | | | | W2 | R1 | | | | | | |
| | | VCCA_PLL_R3 | | | | | V7 | | | | | | | |
| | | VCCD_PLL_R3 | | | | | V9 | | | | | | | |
| | | VCCD_PLL_R2 | | | | | U9 | P7 | | | | | | |
| | | VCCA_PLL_R2 | | | | | U7 | R7 | | | | | | |
| 6C | VREF6C | CLK10p | CLK10p | | | | U2 | P2 | | | | | | |
| 6C | VREF6C | CLK10n | CLK10n | | | | U1 | P1 | | | | | | |
| 6C | VREF6C | IO | CLK11p | | DIFFIO_RX_R23p | DIFFOUT_R45p | T2 | M1 | | | | | | |
| 6C | VREF6C | IO | CLK11n | | DIFFIO_RX_R23n | DIFFOUT_R45n | T1 | N1 | | | | | | |
| 6C | VREF6C | IO | PLL_R2_FB_CLKOUT0p | | DIFFIO_TX_R23p | DIFFOUT_R46p | U11 | P9 | | | | | | |
| 6C | VREF6C | IO | PLL_R2_CLKOUT0n | | DIFFIO_TX_R23n | DIFFOUT_R46n | U10 | P8 | | | | | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R24p | DIFFOUT_R47p | P2 | N4 | DQ14R | DQ17R | | DQ14R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R24n | DIFFOUT_R47n | R1 | P4 | DQ14R | DQ17R | | DQ14R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R24p | DIFFOUT_R48p | T7 | N7 | DQ14R | DQ17R | | DQ14R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R24n | DIFFOUT_R48n | U6 | N6 | DQ14R | DQ17R | | DQ14R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R25p | DIFFOUT_R49p | R4 | P3 | DQS14R | DQS17R/CQ17R | | DQS14R | DQS16R/CQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R25n | DIFFOUT_R49n | R3 | N2 | DQS14R | DQS17R/DQ17R | | DQS14R | DQS16R/DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R25p | DIFFOUT_R50p | T9 | N5 | DQ15R | DQ17R | | DQ15R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R25n | DIFFOUT_R50n | T8 | M4 | DQ15R | DQ17R | | DQ15R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R26p | DIFFOUT_R51p | N2 | L2 | DQS15R | DQ17R/CQn17R | | DQS15R | DQ16R/CQn16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R26n | DIFFOUT_R51n | P1 | L1 | DQS15R | DQ17R | | DQS15R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R26p | DIFFOUT_R52p | T5 | N9 | DQ15R | DQ17R | | DQ15R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R26n | DIFFOUT_R52n | T4 | N8 | DQ15R | DQ17R | | DQ15R | DQ16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R27p | DIFFOUT_R53p | P4 | L3 | DQ16R | DQ18R | DQ19R | DQ16R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R27n | DIFFOUT_R53n | P3 | M3 | DQ16R | DQ18R | DQ19R | DQ16R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R27p | DIFFOUT_R54p | R7 | L5 | DQ16R | DQ18R | DQ19R | DQ16R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R27n | DIFFOUT_R54n | R6 | L4 | DQ16R | DQ18R | DQ19R | DQ16R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R28p | DIFFOUT_R55p | M1 | K2 | DQS16R | DQS18R/CQ18R | | DQ19R | DQS16R | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R28n | DIFFOUT_R55n | N1 | K1 | DQS16R | DQS18R/DQ18R | | DQ19R | DQS16R | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R28p | DIFFOUT_R56p | P6 | L6 | DQ17R | DQ18R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R28n | DIFFOUT_R56n | P5 | M6 | DQ17R | DQ18R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R29p | DIFFOUT_R57p | N4 | | DQS17R | DQ18R/CQn18R | DQS19R/CQ19R | | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R29n | DIFFOUT_R57n | N3 | | DQS17R | DQ18R | DQS19R/DQ19R | | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R29p | DIFFOUT_R58p | R12 | | DQ17R | DQ18R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R29n | DIFFOUT_R58n | T11 | | DQ17R | DQ18R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R30p | DIFFOUT_R59p | L2 | | DQ18R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R30n | DIFFOUT_R59n | L1 | | DQ18R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R30p | DIFFOUT_R60p | R10 | | DQ18R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R30n | DIFFOUT_R60n | R9 | | DQ18R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R31p | DIFFOUT_R61p | M4 | | DQS18R | DQS19R/CQ19R | DQ19R/CQn19R | | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R31n | DIFFOUT_R61n | M3 | | DQS18R | DQS19R/DQ19R | DQ19R | | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R31p | DIFFOUT_R62p | P8 | | DQ19R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R31n | DIFFOUT_R62n | P7 | | DQ19R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R32p | DIFFOUT_R63p | K2 | | DQS19R | DQ19R/CQn19R | DQ19R | | | |
| 6C | VREF6C | IO | | | DIFFIO_RX_R32n | DIFFOUT_R63n | K1 | | DQS19R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R32p | DIFFOUT_R64p | N6 | | DQ19R | DQ19R | | DQ19R | | |
| 6C | VREF6C | IO | | | DIFFIO_TX_R32n | DIFFOUT_R64n | N5 | | DQ19R | DQ19R | | DQ19R | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R33p | DIFFOUT_R65p | H2 | | | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R33n | DIFFOUT_R65n | J1 | | | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R33p | DIFFOUT_R66p | P11 | | DQ20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R33n | DIFFOUT_R66n | P10 | | DQ20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R34p | DIFFOUT_R67p | K4 | | DQS20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R34n | DIFFOUT_R67n | K3 | | DQS20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R34p | DIFFOUT_R68p | M7 | | DQ20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R34n | DIFFOUT_R68n | M6 | | DQ20R | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R35p | DIFFOUT_R69p | G2 | | DQ21R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R35n | DIFFOUT_R69n | H1 | | DQ21R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R35p | DIFFOUT_R70p | L5 | | DQ21R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R35n | DIFFOUT_R70n | L4 | | DQ21R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R36p | DIFFOUT_R71p | J4 | | DQS21R | DQS24R/CQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R36n | DIFFOUT_R71n | J3 | | DQS21R | DQS24R/DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R36p | DIFFOUT_R72p | L7 | | DQ22R | DQ24R | | | | |



Pin Information for the Stratix® III EP3SE110 Device
Version 1.1

| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 6A | VREF6A | IO | | | DIFFIO_TX_R36n | DIFFOUT_R72n | L6 | | DQ22R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R37p | DIFFOUT_R73p | F1 | H2 | DQS22R | DQ24R/CQn24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R37n | DIFFOUT_R73n | G1 | J1 | DQSn22R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R37p | DIFFOUT_R74p | N9 | K7 | DQ22R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R37n | DIFFOUT_R74n | N8 | K6 | DQ22R | DQ24R | | | | |
| 6A | VREF6A | IO | | | DIFFIO_RX_R38p | DIFFOUT_R75p | H4 | G2 | DQ23R | DQ25R | DQ26R | DQ23R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R38n | DIFFOUT_R75n | H3 | H1 | DQ23R | DQ25R | DQ26R | DQ23R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R38p | DIFFOUT_R76p | K6 | K5 | DQ23R | DQ25R | DQ26R | DQ23R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R38n | DIFFOUT_R76n | K5 | K4 | DQ23R | DQ25R | DQ26R | DQ23R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R39p | DIFFOUT_R77p | E2 | F1 | DQS23R | DQS25R/CQ25R | DQ26R | DQS23R | DQS25R/CQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R39n | DIFFOUT_R77n | E1 | G1 | DQSn23R | DQSn25R/DQ25R | DQ26R | DQSn23R | DQSn25R/DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R39p | DIFFOUT_R78p | N11 | J4 | DQ24R | DQ25R | DQ26R | DQ24R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R39n | DIFFOUT_R78n | N10 | J3 | DQ24R | DQ25R | DQ26R | DQ24R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R40p | DIFFOUT_R79p | F4 | E2 | DQS24R | DQ25R/CQn25R | DQS26R/CQ26R | DQS24R | DQ25R/CQn25R | DQS26R/CQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R40n | DIFFOUT_R79n | F3 | E1 | DQSn24R | DQ25R | DQSn26R/DQ26R | DQSn24R | DQ25R | DQSn26R/DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R40p | DIFFOUT_R80p | J7 | L9 | DQ24R | DQ25R | DQ26R | DQ24R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R40n | DIFFOUT_R80n | J6 | L8 | DQ24R | DQ25R | DQ26R | DQ24R | DQ25R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R41p | DIFFOUT_R81p | G5 | H4 | DQ25R | DQ26R | DQ26R | DQ25R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R41n | DIFFOUT_R81n | G4 | H3 | DQ25R | DQ26R | DQ26R | DQ25R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R41p | DIFFOUT_R82p | K8 | K9 | DQ25R | DQ26R | DQ26R | DQ25R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R41n | DIFFOUT_R82n | K7 | K8 | DQ25R | DQ26R | DQ26R | DQ25R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R42p | DIFFOUT_R83p | C1 | D2 | DQS25R | DQS26R/CQ26R | DQ26R/CQn26R | DQS25R | DQS26R/CQ26R | DQ26R/CQn26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R42n | DIFFOUT_R83n | D1 | D1 | DQSn25R | DQSn26R/DQ26R | DQ26R | DQSn25R | DQSn26R/DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R42p | DIFFOUT_R84p | M10 | J6 | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R42n | DIFFOUT_R84n | M9 | H5 | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R43p | DIFFOUT_R85p | D3 | F4 | DQS26R | DQ26R/CQn26R | DQ26R | DQS26R | DQ26R/CQn26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_RX_R43n | DIFFOUT_R85n | D2 | F3 | DQSn26R | DQ26R | DQ26R | DQSn26R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R43p | DIFFOUT_R86p | L9 | G4 | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R |
| 6A | VREF6A | IO | | | DIFFIO_TX_R43n | DIFFOUT_R86n | L8 | G3 | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R | DQ26R |
| 6A | VREF6A | IO | RUP6A | | DIFFIO_RX_R44p | DIFFOUT_R87p | E4 | B1 | | | | | | |
| 6A | VREF6A | IO | RDN6A | | DIFFIO_RX_R44n | DIFFOUT_R87n | E3 | C1 | | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R44p | DIFFOUT_R88p | H6 | H6 | | | | | | |
| 6A | VREF6A | IO | | | DIFFIO_TX_R44n | DIFFOUT_R88n | H5 | G5 | | | | | | |
| | | MSEL2 | | MSEL2 | | | K9 | G7 | | | | | | |
| | | MSEL1 | | MSEL1 | | | J9 | J9 | | | | | | |
| | | MSEL0 | | MSEL0 | | | K10 | H8 | | | | | | |
| | | TEMPDIODEn | | | | | D4 | D4 | | | | | | |
| | | TEMPDIODEp | | | | | E5 | D3 | | | | | | |
| | | NC | | | | | G7 | E4 | | | | | | |
| 7A | VREF7A | IO | | | | DIFFOUT_T1n | F8 | A2 | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T1p | F6 | C3 | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T |
| 7A | VREF7A | IO | RDN7A | | DIFFIO_RX_T1n | DIFFOUT_T2n | E7 | A4 | DQSn1T | DQ1T | DQ1T | DQSn1T | DQ1T | DQ1T |
| 7A | VREF7A | IO | RUP7A | | DIFFIO_RX_T1p | DIFFOUT_T2p | F7 | B4 | DQS1T | DQ1T/CQn1T | DQ1T | DQS1T | DQ1T/CQn1T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T3n | F9 | A3 | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T3p | G8 | B2 | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T2n | DIFFOUT_T4n | C3 | D7 | DQSn2T | DQSn1T/DQ1T | DQ1T | DQSn2T | DQSn1T/DQ1T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T2p | DIFFOUT_T4p | C4 | E7 | DQS2T | DQSn1T/CQ1T | DQ1T/CQn1T | DQS2T | DQSn1T/CQ1T | DQ1T/CQn1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T5n | C6 | G8 | DQ2T | DQ1T | DQ1T | DQ2T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T5p | D6 | G9 | DQ2T | DQ1T | DQ1T | DQ2T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T3n | DIFFOUT_T6n | B5 | E8 | DQ2T | DQ1T | DQ1T | DQ2T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T3p | DIFFOUT_T6p | C5 | F8 | DQ2T | DQ1T | DQ1T | DQ2T | DQ1T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T7n | J11 | D6 | DQ3T | DQ2T | DQ1T | DQ3T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T7p | G9 | E5 | DQ3T | DQ2T | DQ1T | DQ3T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T4n | DIFFOUT_T8n | G11 | C5 | DQSn3T | DQ2T | DQSn1T/DQ1T | DQSn3T | DQ2T | DQSn1T/DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T4p | DIFFOUT_T8p | H11 | D5 | DQS3T | DQ2T/CQn2T | DQSn1T/CQ1T | DQS3T | DQ2T/CQn2T | DQSn1T/CQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T9n | J12 | B5 | DQ3T | DQ2T | DQ1T | DQ3T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T9p | G10 | C6 | DQ3T | DQ2T | DQ1T | DQ3T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T5n | DIFFOUT_T10n | A2 | A5 | DQSn4T | DQSn2T/DQ2T | DQ1T | DQSn4T | DQSn2T/DQ2T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T5p | DIFFOUT_T10p | B2 | A6 | DQS4T | DQS2T/CQ2T | DQ1T | DQS4T | DQS2T/CQ2T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T11n | A5 | A8 | DQ4T | DQ2T | DQ1T | DQ4T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T11p | A3 | A9 | DQ4T | DQ2T | DQ1T | DQ4T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T6n | DIFFOUT_T12n | A4 | A7 | DQ4T | DQ2T | DQ1T | DQ4T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | DIFFIO_RX_T6p | DIFFOUT_T12p | B4 | B7 | DQ4T | DQ2T | DQ1T | DQ4T | DQ2T | DQ1T |
| 7A | VREF7A | IO | | | | DIFFOUT_T13n | D7 | B8 | DQ5T | DQ3T | | DQ5T | DQ3T | |
| 7A | VREF7A | IO | | | | DIFFOUT_T13p | E8 | F9 | DQ5T | DQ3T | | DQ5T | DQ3T | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T7n | DIFFOUT_T14n | C9 | C8 | DQSn5T | DQ3T | | DQSn5T | DQ3T | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T7p | DIFFOUT_T14p | D9 | D8 | DQSn5T | DQ3T/CQn3T | | DQSn5T | DQ3T/CQn3T | |
| 7A | VREF7A | IO | | | | DIFFOUT_T15n | E10 | D9 | DQ5T | DQ3T | | DQ5T | DQ3T | |
| 7A | VREF7A | IO | | | | DIFFOUT_T15p | D8 | C9 | DQ5T | DQ3T | | DQ5T | DQ3T | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 7A | VREF7A | IO | | | DIFFIO_RX_T8n | DIFFFOU_T16n | A7 | E10 | DQSn6T | DQSn3T/DQ3T | | DQSn6T | DQSn3T/DQ3T | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T8p | DIFFFOU_T16p | B7 | F10 | DQS6T | DQS3T/CQ3T | | DQS6T | DQS3T/CQ3T | |
| 7A | VREF7A | IO | | | | DIFFFOU_T17n | A6 | H10 | DQ6T | DQ3T | | DQ6T | DQ3T | |
| 7A | VREF7A | IO | | | | DIFFFOU_T17p | C7 | G10 | DQ6T | DQ3T | | DQ6T | DQ3T | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T9n | DIFFFOU_T18n | A8 | D10 | DQ6T | DQ3T | | DQ6T | DQ3T | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T9p | DIFFFOU_T18p | B8 | E11 | DQ6T | DQ3T | | DQ6T | DQ3T | |
| 7A | VREF7A | IO | | | | DIFFFOU_T19n | M13 | H11 | | | | | | |
| 7A | VREF7A | IO | | | | DIFFFOU_T19p | L13 | J10 | | | | | | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T10n | DIFFFOU_T20n | K11 | J11 | | | | | | |
| 7A | VREF7A | IO | | | DIFFIO_RX_T10p | DIFFFOU_T20p | K12 | J12 | | | | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T21n | G12 | | DQ7T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T21p | F11 | | DQ7T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T11n | DIFFFOU_T22n | F12 | | DQSn7T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T11p | DIFFFOU_T22p | F13 | | DQS7T | DQ7T/CQn7T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T23n | G13 | | DQ7T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T23p | E11 | | DQ7T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T12n | DIFFFOU_T24n | C11 | | DQSn8T | DQSn7T/DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T12p | DIFFFOU_T24p | D11 | | DQS8T | DQS7T/CQ7T | DQ7T/CQn7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T25n | D13 | | DQ8T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T25p | D10 | | DQ8T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T13n | DIFFFOU_T26n | C12 | | DQ8T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T13p | DIFFFOU_T26p | D12 | | DQ8T | DQ7T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T27n | K14 | | DQ9T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T27p | K13 | | DQ9T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T14n | DIFFFOU_T28n | H14 | | DQSn9T | DQ8T | DQSn7T/DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T14p | DIFFFOU_T28p | J14 | | DQS9T | DQ8T/CQn8T | DQS7T/CQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T29n | K15 | | DQ9T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T29p | L14 | | DQ9T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T15n | DIFFFOU_T30n | A10 | | DQSn10T | DQSn8T/DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T15p | DIFFFOU_T30p | B10 | | DQS10T | DQS8T/CQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T31n | A12 | | DQ10T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | | DIFFFOU_T31p | A9 | | DQ10T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T16n | DIFFFOU_T32n | A11 | | DQ10T | DQ8T | DQ7T | | | |
| 7B | VREF7B | IO | | | DIFFIO_RX_T16p | DIFFFOU_T32p | B11 | | DQ10T | DQ8T | DQ7T | | | |
| 7C | VREF7C | IO | | | | DIFFFOU_T33n | D14 | B10 | DQ11T | DQ11T | | DQ11T | DQ11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T33p | E13 | C10 | DQ11T | DQ11T | | DQ11T | DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T17n | DIFFFOU_T34n | E14 | A10 | DQSn11T | DQ11T | | DQSn11T | DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T17p | DIFFFOU_T34p | F14 | B11 | DQS11T | DQ11T/CQn11T | | DQS11T | DQ11T/CQn11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T35n | F15 | A11 | DQ11T | DQ11T | | DQ11T | DQ11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T35p | D15 | A12 | DQ11T | DQ11T | | DQ11T | DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T18n | DIFFFOU_T36n | A13 | C12 | DQSn12T | DQSn11T/DQ11T | | DQSn12T | DQSn11T/DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T18p | DIFFFOU_T36p | B13 | D11 | DQS12T | DQS11T/CQ11T | | DQS12T | DQS11T/CQ11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T37n | A15 | E13 | DQ12T | DQ11T | | DQ12T | DQ11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T37p | C14 | D13 | DQ12T | DQ11T | | DQ12T | DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T19n | DIFFFOU_T38n | A14 | C13 | DQ12T | DQ11T | | DQ12T | DQ11T | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T19p | DIFFFOU_T38p | B14 | D12 | DQ12T | DQ11T | | DQ12T | DQ11T | |
| 7C | VREF7C | IO | | | | DIFFFOU_T39n | C17 | G12 | DQ13T | | | DQ13T | | |
| 7C | VREF7C | IO | | | | DIFFFOU_T39p | C15 | F12 | DQ13T | | | DQ13T | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T20n | DIFFFOU_T40n | C16 | F13 | DQSn13T | | | DQSn13T | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T20p | DIFFFOU_T40p | D16 | G13 | DQS13T | | | DQS13T | | |
| 7C | VREF7C | IO | | | | DIFFFOU_T41n | D17 | H14 | DQ13T | | | DQ13T | | |
| 7C | VREF7C | IO | | | | DIFFFOU_T41p | E17 | J14 | DQ13T | | | DQ13T | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T21n | DIFFFOU_T42n | J16 | A13 | | | | | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T21p | DIFFFOU_T42p | J15 | B13 | | | | | | |
| 7C | VREF7C | IO | PLL_T2_CLKOUT4 | | | DIFFFOU_T43n | L16 | | | | | | | |
| 7C | VREF7C | IO | PLL_T2_CLKOUT3 | | | DIFFFOU_T43p | K16 | | | | | | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T22n | DIFFFOU_T44n | G16 | | | | | | | |
| 7C | VREF7C | IO | | | DIFFIO_RX_T22p | DIFFFOU_T44p | H16 | | | | | | | |
| 7C | VREF7C | IO | PLL_T2_CLKOUT0n | | | DIFFFOU_T45n | K17 | | | | | | | |
| 7C | VREF7C | IO | PLL_T2_CLKOUT0p | | | DIFFFOU_T45p | L17 | | | | | | | |
| 7C | VREF7C | IO | PLL_T2_FBn/CLKOUT2 | | DIFFIO_RX_T23n | DIFFFOU_T46n | E16 | | | | | | | |
| 7C | VREF7C | IO | PLL_T2_FBp/CLKOUT1 | | DIFFIO_RX_T23p | DIFFFOU_T46p | F16 | | | | | | | |
| 7C | VREF7C | IO | CLK13n | | | DIFFFOU_T47n | A16 | A14 | | | | | | |
| 7C | VREF7C | IO | CLK13p | | | DIFFFOU_T47p | B16 | B14 | | | | | | |
| 7C | VREF7C | IO | CLK12n | | DIFFIO_RX_T24n | DIFFFOU_T48n | A17 | C14 | | | | | | |
| 7C | VREF7C | IO | CLK12p | | DIFFIO_RX_T24p | DIFFFOU_T48p | B17 | D14 | | | | | | |
| | | VCC_CLKIN7C | | | | | H17 | F14 | | | | | | |
| | | VCCA_PLL_T2 | | | | | G17 | | | | | | | |
| | | VCCD_PLL_T2 | | | | | J17 | | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | VCCD_PLL_T1 | | | | | J18 | G15 | | | | | | |
| | | VCCA_PLL_T1 | | | | | G18 | F15 | | | | | | |
| | | VCC_CLKIN8C | | | | | K18 | F16 | | | | | | |
| 8C | VREF8C | IO | CLK14p | | DIFFIO_RX_T25p | DIFFFOUT_T49p | B19 | D15 | | | | | | |
| 8C | VREF8C | IO | CLK14n | | DIFFIO_RX_T25n | DIFFFOUT_T49n | A19 | C15 | | | | | | |
| 8C | VREF8C | IO | CLK15p | | | DIFFFOUT_T50p | B20 | B16 | | | | | | |
| 8C | VREF8C | IO | CLK15n | | | DIFFFOUT_T50n | A20 | A15 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_FBp/CLKOUT1 | | DIFFIO_RX_T26p | DIFFFOUT_T51p | D18 | B17 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_FBn/CLKOUT2 | | DIFFIO_RX_T26n | DIFFFOUT_T51n | C18 | A16 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_CLKOUT0p | | | DIFFFOUT_T52p | K19 | J16 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_CLKOUT0n | | | DIFFFOUT_T52n | J19 | J15 | | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T27p | DIFFFOUT_T53p | D19 | E16 | | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T27n | DIFFFOUT_T53n | C19 | D16 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_CLKOUT3 | | | DIFFFOUT_T54p | L19 | G16 | | | | | | |
| 8C | VREF8C | IO | PLL_T1_CLKOUT4 | | | DIFFFOUT_T54n | L20 | H16 | | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T28p | DIFFFOUT_T55p | F19 | | | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T28n | DIFFFOUT_T55n | E19 | | | | | | | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T56p | C20 | | DQ14T | | | | | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T56n | D20 | | DQ14T | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T29p | DIFFFOUT_T57p | D21 | | DQS14T | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T29n | DIFFFOUT_T57n | C21 | | DQS14T | | | | | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T58p | D22 | | DQ14T | | | | | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T58n | E22 | | DQ14T | | | | | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T30p | DIFFFOUT_T59p | G20 | B19 | DQ15T | DQ16T | | DQ15T | DQ16T | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T30n | DIFFFOUT_T59n | F20 | A19 | DQ15T | DQ16T | | DQ15T | DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T60p | E20 | A17 | DQ15T | DQ16T | | DQ15T | DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T60n | H20 | A18 | DQ15T | DQ16T | | DQ15T | DQ16T | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T31p | DIFFFOUT_T61p | G21 | C19 | DQS15T | DQS16T/CQ16T | | DQS15T | DQS16T/CQ16T | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T31n | DIFFFOUT_T61n | F21 | C18 | DQS15T | DQS16T/DQ16T | | DQS15T | DQS16T/DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T62p | A22 | F17 | DQ16T | DQ16T | | DQ16T | DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T62n | A21 | C17 | DQ16T | DQ16T | | DQ16T | DQ16T | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T32p | DIFFFOUT_T63p | B23 | E17 | DQS16T | DQ16T/CQn16T | | DQS16T | DQ16T/CQn16T | |
| 8C | VREF8C | IO | | | DIFFIO_RX_T32n | DIFFFOUT_T63n | A23 | D17 | DQS16T | DQ16T | | DQS16T | DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T64p | B22 | D18 | DQ16T | DQ16T | | DQ16T | DQ16T | |
| 8C | VREF8C | IO | | | | DIFFFOUT_T64n | C23 | F18 | DQ16T | DQ16T | | DQ16T | DQ16T | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T33p | DIFFFOUT_T65p | B25 | | DQ17T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T33n | DIFFFOUT_T65n | A25 | | DQ17T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T66p | A24 | | DQ17T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T66n | A26 | | DQ17T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T34p | DIFFFOUT_T67p | C26 | | DQS17T | DQS19T/CQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T34n | DIFFFOUT_T67n | B28 | | DQS17T | DQS19T/DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T68p | K20 | | DQ18T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T68n | J20 | | DQ18T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T35p | DIFFFOUT_T69p | J22 | | DQS18T | DQ19T/CQn19T | DQS20T/CQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T35n | DIFFFOUT_T69n | J21 | | DQS18T | DQ19T | DQS20T/DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T70p | K21 | | DQ18T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T70n | K22 | | DQ18T | DQ19T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T36p | DIFFFOUT_T71p | D25 | | DQ19T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T36n | DIFFFOUT_T71n | D24 | | DQ19T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T72p | C24 | | DQ19T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T72n | E25 | | DQ19T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T37p | DIFFFOUT_T73p | E23 | | DQS19T | DQS20T/CQ20T | DQ20T/CQn20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T37n | DIFFFOUT_T73n | D23 | | DQS19T | DQS20T/DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T74p | A27 | | DQ20T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T74n | C27 | | DQ20T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T38p | DIFFFOUT_T75p | B28 | | DQS20T | DQ20T/CQn20T | DQ20T | | | |
| 8B | VREF8B | IO | | | DIFFIO_RX_T38n | DIFFFOUT_T75n | A28 | | DQS20T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T76p | C28 | | DQ20T | DQ20T | DQ20T | | | |
| 8B | VREF8B | IO | | | | DIFFFOUT_T76n | A29 | | DQ20T | DQ20T | DQ20T | | | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T39p | DIFFFOUT_T77p | M23 | G18 | | | | | | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T39n | DIFFFOUT_T77n | L23 | F19 | | | | | | |
| 8A | VREF8A | IO | | | | DIFFFOUT_T78p | L22 | J18 | | | | | | |
| 8A | VREF8A | IO | | | | DIFFFOUT_T78n | K23 | J19 | | | | | | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T40p | DIFFFOUT_T79p | G23 | B20 | DQ21T | DQ24T | | DQ21T | DQ24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T40n | DIFFFOUT_T79n | F23 | A21 | DQ21T | DQ24T | | DQ21T | DQ24T | |
| 8A | VREF8A | IO | | | | DIFFFOUT_T80p | F22 | A20 | DQ21T | DQ24T | | DQ21T | DQ24T | |
| 8A | VREF8A | IO | | | | DIFFFOUT_T80n | H23 | D19 | DQ21T | DQ24T | | DQ21T | DQ24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T41p | DIFFFOUT_T81p | G24 | D20 | DQS21T | DQS24T/CQ24T | | DQS21T | DQS24T/CQ24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T41n | DIFFFOUT_T81n | F24 | C20 | DQS21T | DQS24T/DQ24T | | DQS21T | DQS24T/DQ24T | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| 8A | VREF8A | IO | | | | DIFFOUT_T82p | F25 | D21 | DQ22T | DQ24T | | DQ22T | DQ24T | |
| 8A | VREF8A | IO | | | | DIFFOUT_T82n | D27 | C21 | DQ22T | DQ24T | | DQ22T | DQ24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T42p | DIFFOUT_T83p | E26 | B22 | DQS22T | DQ24T/CQn24T | | DQS22T | DQ24T/CQn24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T42n | DIFFOUT_T83n | D26 | A22 | DQSn22T | DQ24T | | DQSn22T | DQ24T | |
| 8A | VREF8A | IO | | | | DIFFOUT_T84p | F26 | A23 | DQ22T | DQ24T | | DQ22T | DQ24T | |
| 8A | VREF8A | IO | | | | DIFFOUT_T84n | D28 | B23 | DQ22T | DQ24T | | DQ22T | DQ24T | |
| 8A | VREF8A | IO | | | DIFFIO_RX_T43p | DIFFOUT_T85p | B31 | B25 | DQ23T | DQ25T | DQ26T | DQ23T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T43n | DIFFOUT_T85n | A31 | A26 | DQ23T | DQ25T | DQ26T | DQ23T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T86p | A30 | A24 | DQ23T | DQ25T | DQ26T | DQ23T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T86n | A33 | A25 | DQ23T | DQ25T | DQ26T | DQ23T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T44p | DIFFOUT_T87p | B32 | B26 | DQS23T | DQS25T/CQ25T | DQ26T | DQS23T | DQS25T/CQ25T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T44n | DIFFOUT_T87n | A32 | A27 | DQSn23T | DQSn25T/DQ25T | DQ26T | DQSn23T | DQSn25T/DQ25T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T88p | C29 | F20 | DQ24T | DQ25T | DQ26T | DQ24T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T88n | B29 | E20 | DQ24T | DQ25T | DQ26T | DQ24T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T45p | DIFFOUT_T89p | D30 | H20 | DQS24T | DQ25T/CQn25T | DQS26T/CQ26T | DQS24T | DQ25T/CQn25T | DQS26T/CQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T45n | DIFFOUT_T89n | C30 | G20 | DQSn24T | DQ25T | DQSn26T/DQ26T | DQSn24T | DQ25T | DQSn26T/DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T90p | C31 | H19 | DQ24T | DQ25T | DQ26T | DQ24T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T90n | D31 | J20 | DQ24T | DQ25T | DQ26T | DQ24T | DQ25T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T46p | DIFFOUT_T91p | F28 | D23 | DQ25T | DQ26T | DQ26T | DQ25T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T46n | DIFFOUT_T91n | E28 | C23 | DQ25T | DQ26T | DQ26T | DQ25T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T92p | F27 | D22 | DQ25T | DQ26T | DQ26T | DQ25T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T92n | G27 | D25 | DQ25T | DQ26T | DQ26T | DQ25T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T47p | DIFFOUT_T93p | F29 | D24 | DQS25T | DQS26T/CQ26T | DQ26T/CQn26T | DQS25T | DQS26T/CQ26T | DQ26T/CQn26T |
| 8A | VREF8A | IO | | | DIFFIO_RX_T47n | DIFFOUT_T93n | E29 | C24 | DQSn25T | DQSn26T/DQ26T | DQ26T | DQSn25T | DQSn26T/DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T94p | J24 | F21 | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T94n | K24 | G21 | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T |
| 8A | VREF8A | IO | RUP8A | | DIFFIO_RX_T48p | DIFFOUT_T95p | H26 | F22 | DQS26T | DQ26T/CQn26T | DQ26T | DQS26T | DQ26T/CQn26T | DQ26T |
| 8A | VREF8A | IO | RDN8A | | DIFFIO_RX_T48n | DIFFOUT_T95n | G26 | E22 | DQSn26T | DQ26T | DQ26T | DQSn26T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T96p | J25 | E23 | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T |
| 8A | VREF8A | IO | | | | DIFFOUT_T96n | K25 | G22 | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T | DQ26T |
| | | VCCIO1A | | | | | L26 | H23 | | | | | | |
| | | VCCIO1A | | | | | N28 | H26 | | | | | | |
| | | VCCIO1A | | | | | H29 | E26 | | | | | | |
| | | VCCIO1A | | | | | G32 | | | | | | | |
| | | VCCIO1A | | | | | B34 | | | | | | | |
| | | VCCIO1C | | | | | M32 | P26 | | | | | | |
| | | VCCIO1C | | | | | V30 | R23 | | | | | | |
| | | VCCIO1C | | | | | U34 | | | | | | | |
| | | VCCIO1C | | | | | T31 | | | | | | | |
| | | VCCIO2C | | | | | W25 | T26 | | | | | | |
| | | VCCIO2C | | | | | AD32 | V22 | | | | | | |
| | | VCCIO2C | | | | | W29 | | | | | | | |
| | | VCCIO2C | | | | | W32 | | | | | | | |
| | | VCCIO2A | | | | | AB28 | AD26 | | | | | | |
| | | VCCIO2A | | | | | AN34 | AA22 | | | | | | |
| | | VCCIO2A | | | | | AH32 | W26 | | | | | | |
| | | VCCIO2A | | | | | AG28 | | | | | | | |
| | | VCCIO2A | | | | | AD25 | | | | | | | |
| | | VCCIO3A | | | | | AF25 | AC22 | | | | | | |
| | | VCCIO3A | | | | | AM27 | AF22 | | | | | | |
| | | VCCIO3A | | | | | AL30 | AF25 | | | | | | |
| | | VCCIO3A | | | | | AJ25 | AC18 | | | | | | |
| | | VCCIO3B | | | | | AF22 | | | | | | | |
| | | VCCIO3B | | | | | AM25 | | | | | | | |
| | | VCCIO3C | | | | | AH21 | AF18 | | | | | | |
| | | VCCIO3C | | | | | AM20 | AC15 | | | | | | |
| | | VCCIO3C | | | | | AJ18 | | | | | | | |
| | | VCCIO4C | | | | | AG16 | AB12 | | | | | | |
| | | VCCIO4C | | | | | AP17 | AF13 | | | | | | |
| | | VCCIO4C | | | | | AM13 | | | | | | | |
| | | VCCIO4B | | | | | AH13 | | | | | | | |
| | | VCCIO4B | | | | | AM10 | | | | | | | |
| | | VCCIO4A | | | | | AF12 | AC6 | | | | | | |
| | | VCCIO4A | | | | | AM3 | AF4 | | | | | | |
| | | VCCIO4A | | | | | AL6 | AF7 | | | | | | |
| | | VCCIO4A | | | | | AH10 | AD10 | | | | | | |
| | | VCCIO5A | | | | | AD9 | AD3 | | | | | | |
| | | VCCIO5A | | | | | AN1 | AA3 | | | | | | |
| | | VCCIO5A | | | | | AH3 | AA7 | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | VCCIO5A | | | | | A66 | | | | | | | |
| | | VCCIO5A | | | | | AB7 | | | | | | | |
| | | VCCIO5C | | | | | W4 | R3 | | | | | | |
| | | VCCIO5C | | | | | AC3 | P6 | | | | | | |
| | | VCCIO5C | | | | | V1 | | | | | | | |
| | | VCCIO5C | | | | | U5 | | | | | | | |
| | | VCCIO6C | | | | | T10 | L7 | | | | | | |
| | | VCCIO6C | | | | | T3 | N3 | | | | | | |
| | | VCCIO6C | | | | | T6 | | | | | | | |
| | | VCCIO6C | | | | | L3 | | | | | | | |
| | | VCCIO6A | | | | | L10 | K3 | | | | | | |
| | | VCCIO6A | | | | | N7 | H7 | | | | | | |
| | | VCCIO6A | | | | | H7 | E3 | | | | | | |
| | | VCCIO6A | | | | | G3 | | | | | | | |
| | | VCCIO6A | | | | | B1 | | | | | | | |
| | | VCCIO7A | | | | | F10 | F11 | | | | | | |
| | | VCCIO7A | | | | | J10 | F7 | | | | | | |
| | | VCCIO7A | | | | | D5 | C4 | | | | | | |
| | | VCCIO7A | | | | | C8 | C7 | | | | | | |
| | | VCCIO7B | | | | | C10 | | | | | | | |
| | | VCCIO7B | | | | | J13 | | | | | | | |
| | | VCCIO7C | | | | | C13 | C11 | | | | | | |
| | | VCCIO7C | | | | | G14 | G14 | | | | | | |
| | | VCCIO7C | | | | | F17 | | | | | | | |
| | | VCCIO8C | | | | | C22 | C16 | | | | | | |
| | | VCCIO8C | | | | | H19 | G17 | | | | | | |
| | | VCCIO8C | | | | | A18 | | | | | | | |
| | | VCCIO8B | | | | | C25 | | | | | | | |
| | | VCCIO8B | | | | | G22 | | | | | | | |
| | | VCCIO8A | | | | | C32 | C22 | | | | | | |
| | | VCCIO8A | | | | | J23 | F23 | | | | | | |
| | | VCCIO8A | | | | | G25 | E19 | | | | | | |
| | | VCCIO8A | | | | | D29 | C25 | | | | | | |
| | | VCCL | | | | | U17 | R15 | | | | | | |
| | | VCCL | | | | | AB14 | N17 | | | | | | |
| | | VCCL | | | | | AB22 | V14 | | | | | | |
| | | VCCL | | | | | AA13 | V18 | | | | | | |
| | | VCCL | | | | | AA15 | U11 | | | | | | |
| | | VCCL | | | | | AA17 | U13 | | | | | | |
| | | VCCL | | | | | AA19 | U15 | | | | | | |
| | | VCCL | | | | | AA21 | U17 | | | | | | |
| | | VCCL | | | | | Y14 | T12 | | | | | | |
| | | VCCL | | | | | Y16 | T14 | | | | | | |
| | | VCCL | | | | | Y18 | T16 | | | | | | |
| | | VCCL | | | | | Y20 | R13 | | | | | | |
| | | VCCL | | | | | W15 | R17 | | | | | | |
| | | VCCL | | | | | W17 | P12 | | | | | | |
| | | VCCL | | | | | W19 | P14 | | | | | | |
| | | VCCL | | | | | W21 | P16 | | | | | | |
| | | VCCL | | | | | V14 | P18 | | | | | | |
| | | VCCL | | | | | V16 | N13 | | | | | | |
| | | VCCL | | | | | V18 | N15 | | | | | | |
| | | VCCL | | | | | V20 | M12 | | | | | | |
| | | VCCL | | | | | U15 | M14 | | | | | | |
| | | VCCL | | | | | U19 | M16 | | | | | | |
| | | VCCL | | | | | U21 | L11 | | | | | | |
| | | VCCL | | | | | T14 | L17 | | | | | | |
| | | VCCL | | | | | T16 | | | | | | | |
| | | VCCL | | | | | T18 | | | | | | | |
| | | VCCL | | | | | T20 | | | | | | | |
| | | VCCL | | | | | R15 | | | | | | | |
| | | VCCL | | | | | R17 | | | | | | | |
| | | VCCL | | | | | R19 | | | | | | | |
| | | VCCL | | | | | R21 | | | | | | | |
| | | VCCL | | | | | P14 | | | | | | | |
| | | VCCL | | | | | P16 | | | | | | | |
| | | VCCL | | | | | P18 | | | | | | | |
| | | VCCL | | | | | P20 | | | | | | | |
| | | VCCL | | | | | P22 | | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | VCCL | | | | | N13 | | | | | | | |
| | | VCCL | | | | | N21 | | | | | | | |
| | | VCC | | | | | AB16 | M18 | | | | | | |
| | | VCC | | | | | AB18 | V12 | | | | | | |
| | | VCC | | | | | AB20 | V16 | | | | | | |
| | | VCC | | | | | Y22 | T18 | | | | | | |
| | | VCC | | | | | W13 | R11 | | | | | | |
| | | VCC | | | | | V22 | N11 | | | | | | |
| | | VCC | | | | | U13 | L13 | | | | | | |
| | | VCC | | | | | T22 | L15 | | | | | | |
| | | VCC | | | | | R13 | | | | | | | |
| | | VCC | | | | | N15 | | | | | | | |
| | | VCC | | | | | N17 | | | | | | | |
| | | VCC | | | | | N19 | | | | | | | |
| | | GND | | | | | V17 | R14 | | | | | | |
| | | DNU | | | | | U18 | P15 | | | | | | |
| | | GND | | | | | E21 | K11 | | | | | | |
| | | GND | | | | | AN2 | B27 | | | | | | |
| | | GND | | | | | AN5 | AG2 | | | | | | |
| | | GND | | | | | AN8 | AG5 | | | | | | |
| | | GND | | | | | AN11 | AG8 | | | | | | |
| | | GND | | | | | AN14 | AG11 | | | | | | |
| | | GND | | | | | AN17 | AG14 | | | | | | |
| | | GND | | | | | AN20 | AG17 | | | | | | |
| | | GND | | | | | AN23 | AG20 | | | | | | |
| | | GND | | | | | AN26 | AG23 | | | | | | |
| | | GND | | | | | AN29 | AG26 | | | | | | |
| | | GND | | | | | AN32 | AF27 | | | | | | |
| | | GND | | | | | AM33 | AD2 | | | | | | |
| | | GND | | | | | AK2 | AD5 | | | | | | |
| | | GND | | | | | AK5 | AD8 | | | | | | |
| | | GND | | | | | AK8 | AD11 | | | | | | |
| | | GND | | | | | AK11 | AD14 | | | | | | |
| | | GND | | | | | AK14 | AD17 | | | | | | |
| | | GND | | | | | AK17 | AD20 | | | | | | |
| | | GND | | | | | AK20 | AD23 | | | | | | |
| | | GND | | | | | AK23 | AC24 | | | | | | |
| | | GND | | | | | AK26 | AC27 | | | | | | |
| | | GND | | | | | AK29 | AA2 | | | | | | |
| | | GND | | | | | AJ30 | AA5 | | | | | | |
| | | GND | | | | | AJ33 | AA8 | | | | | | |
| | | GND | | | | | AG2 | AA11 | | | | | | |
| | | GND | | | | | AG5 | AA14 | | | | | | |
| | | GND | | | | | AG8 | AA17 | | | | | | |
| | | GND | | | | | AG11 | AA20 | | | | | | |
| | | GND | | | | | AG14 | Y12 | | | | | | |
| | | GND | | | | | AG17 | Y16 | | | | | | |
| | | GND | | | | | AG20 | Y21 | | | | | | |
| | | GND | | | | | AG23 | Y24 | | | | | | |
| | | GND | | | | | AG26 | Y27 | | | | | | |
| | | GND | | | | | AF27 | W12 | | | | | | |
| | | GND | | | | | AF30 | W14 | | | | | | |
| | | GND | | | | | AF33 | W16 | | | | | | |
| | | GND | | | | | AD2 | W18 | | | | | | |
| | | GND | | | | | AD5 | V2 | | | | | | |
| | | GND | | | | | AD8 | V5 | | | | | | |
| | | GND | | | | | AD11 | V8 | | | | | | |
| | | GND | | | | | AD14 | V11 | | | | | | |
| | | GND | | | | | AD17 | V13 | | | | | | |
| | | GND | | | | | AD20 | V15 | | | | | | |
| | | GND | | | | | AD23 | V17 | | | | | | |
| | | GND | | | | | AC14 | V19 | | | | | | |
| | | GND | | | | | AC16 | U10 | | | | | | |
| | | GND | | | | | AC18 | U12 | | | | | | |
| | | GND | | | | | AC20 | U14 | | | | | | |
| | | GND | | | | | AC24 | U16 | | | | | | |
| | | GND | | | | | AC27 | U18 | | | | | | |
| | | GND | | | | | AC30 | U21 | | | | | | |
| | | GND | | | | | AC33 | U24 | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | GND | | | | | AB13 | U27 | | | | | | |
| | | GND | | | | | AB15 | T11 | | | | | | |
| | | GND | | | | | AB17 | T13 | | | | | | |
| | | GND | | | | | AB19 | T15 | | | | | | |
| | | GND | | | | | AB21 | T17 | | | | | | |
| | | GND | | | | | AB23 | T19 | | | | | | |
| | | GND | | | | | AA2 | R2 | | | | | | |
| | | GND | | | | | AA5 | R5 | | | | | | |
| | | GND | | | | | AA8 | R8 | | | | | | |
| | | GND | | | | | AA11 | R12 | | | | | | |
| | | GND | | | | | AA14 | R16 | | | | | | |
| | | GND | | | | | AA16 | R18 | | | | | | |
| | | GND | | | | | AA18 | P11 | | | | | | |
| | | GND | | | | | AA20 | P13 | | | | | | |
| | | GND | | | | | AA22 | P17 | | | | | | |
| | | GND | | | | | Y13 | P21 | | | | | | |
| | | GND | | | | | Y15 | P24 | | | | | | |
| | | GND | | | | | Y17 | P27 | | | | | | |
| | | GND | | | | | Y19 | N10 | | | | | | |
| | | GND | | | | | Y21 | N12 | | | | | | |
| | | GND | | | | | Y24 | N14 | | | | | | |
| | | GND | | | | | Y27 | N16 | | | | | | |
| | | GND | | | | | Y30 | N18 | | | | | | |
| | | GND | | | | | Y33 | M2 | | | | | | |
| | | GND | | | | | W14 | M5 | | | | | | |
| | | GND | | | | | W16 | M8 | | | | | | |
| | | GND | | | | | W18 | M11 | | | | | | |
| | | GND | | | | | W20 | M13 | | | | | | |
| | | GND | | | | | W22 | M15 | | | | | | |
| | | GND | | | | | V2 | M17 | | | | | | |
| | | GND | | | | | V5 | M19 | | | | | | |
| | | GND | | | | | V8 | L10 | | | | | | |
| | | GND | | | | | V11 | L12 | | | | | | |
| | | GND | | | | | V12 | L14 | | | | | | |
| | | GND | | | | | V13 | L16 | | | | | | |
| | | GND | | | | | V15 | L18 | | | | | | |
| | | GND | | | | | V19 | L21 | | | | | | |
| | | GND | | | | | V21 | L24 | | | | | | |
| | | GND | | | | | V23 | L27 | | | | | | |
| | | GND | | | | | U12 | K13 | | | | | | |
| | | GND | | | | | U14 | K15 | | | | | | |
| | | GND | | | | | U16 | K17 | | | | | | |
| | | GND | | | | | U20 | K19 | | | | | | |
| | | GND | | | | | U22 | J2 | | | | | | |
| | | GND | | | | | U23 | J5 | | | | | | |
| | | GND | | | | | U24 | J8 | | | | | | |
| | | GND | | | | | U27 | J13 | | | | | | |
| | | GND | | | | | U30 | J17 | | | | | | |
| | | GND | | | | | U33 | H9 | | | | | | |
| | | GND | | | | | T13 | H12 | | | | | | |
| | | GND | | | | | T15 | H15 | | | | | | |
| | | GND | | | | | T17 | H18 | | | | | | |
| | | GND | | | | | T19 | H21 | | | | | | |
| | | GND | | | | | T21 | H24 | | | | | | |
| | | GND | | | | | R2 | H27 | | | | | | |
| | | GND | | | | | R5 | F2 | | | | | | |
| | | GND | | | | | R8 | F5 | | | | | | |
| | | GND | | | | | R11 | E6 | | | | | | |
| | | GND | | | | | R14 | E9 | | | | | | |
| | | GND | | | | | R16 | E12 | | | | | | |
| | | GND | | | | | R18 | E15 | | | | | | |
| | | GND | | | | | R20 | E18 | | | | | | |
| | | GND | | | | | R22 | E21 | | | | | | |
| | | GND | | | | | P13 | E24 | | | | | | |
| | | GND | | | | | P15 | E27 | | | | | | |
| | | GND | | | | | P17 | C2 | | | | | | |
| | | GND | | | | | P19 | B3 | | | | | | |
| | | GND | | | | | P21 | B6 | | | | | | |
| | | GND | | | | | P24 | B9 | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | GND | | | | | P27 | B12 | | | | | | |
| | | GND | | | | | P30 | B15 | | | | | | |
| | | GND | | | | | P33 | B18 | | | | | | |
| | | GND | | | | | N12 | B21 | | | | | | |
| | | GND | | | | | N14 | B24 | | | | | | |
| | | GND | | | | | N16 | | | | | | | |
| | | GND | | | | | N18 | | | | | | | |
| | | GND | | | | | N20 | | | | | | | |
| | | GND | | | | | N22 | | | | | | | |
| | | GND | | | | | M2 | | | | | | | |
| | | GND | | | | | M5 | | | | | | | |
| | | GND | | | | | M8 | | | | | | | |
| | | GND | | | | | M11 | | | | | | | |
| | | GND | | | | | M15 | | | | | | | |
| | | GND | | | | | M17 | | | | | | | |
| | | GND | | | | | M19 | | | | | | | |
| | | GND | | | | | M21 | | | | | | | |
| | | GND | | | | | L12 | | | | | | | |
| | | GND | | | | | L15 | | | | | | | |
| | | GND | | | | | L18 | | | | | | | |
| | | GND | | | | | L21 | | | | | | | |
| | | GND | | | | | L24 | | | | | | | |
| | | GND | | | | | L27 | | | | | | | |
| | | GND | | | | | L30 | | | | | | | |
| | | GND | | | | | L33 | | | | | | | |
| | | GND | | | | | J2 | | | | | | | |
| | | GND | | | | | J5 | | | | | | | |
| | | GND | | | | | J8 | | | | | | | |
| | | GND | | | | | H9 | | | | | | | |
| | | GND | | | | | H12 | | | | | | | |
| | | GND | | | | | H15 | | | | | | | |
| | | GND | | | | | H18 | | | | | | | |
| | | GND | | | | | H21 | | | | | | | |
| | | GND | | | | | H24 | | | | | | | |
| | | GND | | | | | H27 | | | | | | | |
| | | GND | | | | | H30 | | | | | | | |
| | | GND | | | | | H33 | | | | | | | |
| | | GND | | | | | F2 | | | | | | | |
| | | GND | | | | | F5 | | | | | | | |
| | | GND | | | | | E6 | | | | | | | |
| | | GND | | | | | E9 | | | | | | | |
| | | GND | | | | | E12 | | | | | | | |
| | | GND | | | | | E15 | | | | | | | |
| | | GND | | | | | E18 | | | | | | | |
| | | GND | | | | | E24 | | | | | | | |
| | | GND | | | | | E27 | | | | | | | |
| | | GND | | | | | E30 | | | | | | | |
| | | GND | | | | | E33 | | | | | | | |
| | | GND | | | | | C2 | | | | | | | |
| | | GND | | | | | B3 | | | | | | | |
| | | GND | | | | | B6 | | | | | | | |
| | | GND | | | | | B9 | | | | | | | |
| | | GND | | | | | B12 | | | | | | | |
| | | GND | | | | | B15 | | | | | | | |
| | | GND | | | | | B18 | | | | | | | |
| | | GND | | | | | B21 | | | | | | | |
| | | GND | | | | | B24 | | | | | | | |
| | | GND | | | | | B27 | | | | | | | |
| | | GND | | | | | B30 | | | | | | | |
| | | GND | | | | | B33 | | | | | | | |
| | | VCCPD1A | | | | | N23 | L19 | | | | | | |
| | | VCCPD1C | | | | | R23 | N19 | | | | | | |
| | | VCCPD2C | | | | | W23 | R19 | | | | | | |
| | | VCCPD2A | | | | | AA23 | U19 | | | | | | |
| | | VCCPD3A | | | | | AC23 | W17 | | | | | | |
| | | VCCPD3B | | | | | AC21 | | | | | | | |
| | | VCCPD3C | | | | | AC19 | W15 | | | | | | |
| | | VCCPD4C | | | | | AC17 | W13 | | | | | | |
| | | VCCPD4B | | | | | AC15 | | | | | | | |



| Bank Number | VREF | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | F1152 | F780 | DQS for X4 for F1152 | DQS for X8/X9 for F1152 (Note 1) | DQS for X16/X18 for F1152 (Note 1) | DQS for X4 for F780 | DQS for X8/X9 for F780 (Note 1) | DQS for X16/X18 for F780 (Note 1) |
|-------------|--------|-------------------|----------------------|------------------------|-------------------------|------------------------------|-------|------|----------------------|----------------------------------|------------------------------------|---------------------|---------------------------------|-----------------------------------|
| | | VCCPD4A | | | | | AC13 | W11 | | | | | | |
| | | VCCPD5A | | | | | AB12 | V10 | | | | | | |
| | | VCCPD5C | | | | | Y12 | T10 | | | | | | |
| | | VCCPD6C | | | | | T12 | P10 | | | | | | |
| | | VCCPD6A | | | | | P12 | M10 | | | | | | |
| | | VCCPD7A | | | | | M12 | K12 | | | | | | |
| | | VCCPD7B | | | | | M14 | | | | | | | |
| | | VCCPD7C | | | | | M16 | K14 | | | | | | |
| | | VCCPD8C | | | | | M18 | K16 | | | | | | |
| | | VCCPD8B | | | | | M20 | | | | | | | |
| | | VCCPD8A | | | | | M22 | K18 | | | | | | |
| | VREF1A | VREF1A | VREF1A | | | | J26 | K22 | | | | | | |
| | VREF1C | VREF1C | VREF1C | | | | P26 | N22 | | | | | | |
| | VREF2C | VREF2C | VREF2C | | | | V27 | U22 | | | | | | |
| | VREF2A | VREF2A | VREF2A | | | | AA26 | Y22 | | | | | | |
| | VREF3A | VREF3A | VREF3A | | | | AG25 | AB18 | | | | | | |
| | VREF3B | VREF3B | VREF3B | | | | AG22 | | | | | | | |
| | VREF3C | VREF3C | VREF3C | | | | AH20 | AA16 | | | | | | |
| | VREF4C | VREF4C | VREF4C | | | | AH16 | AA12 | | | | | | |
| | VREF4B | VREF4B | VREF4B | | | | AG13 | | | | | | | |
| | VREF4A | VREF4A | VREF4A | | | | AG10 | AB10 | | | | | | |
| | VREF5A | VREF5A | VREF5A | | | | AF7 | W7 | | | | | | |
| | VREF5C | VREF5C | VREF5C | | | | AA9 | T7 | | | | | | |
| | VREF6C | VREF6C | VREF6C | | | | U8 | M7 | | | | | | |
| | VREF6A | VREF6A | VREF6A | | | | P9 | J7 | | | | | | |
| | VREF7A | VREF7A | VREF7A | | | | H10 | G11 | | | | | | |
| | VREF7B | VREF7B | VREF7B | | | | H13 | | | | | | | |
| | VREF7C | VREF7C | VREF7C | | | | G15 | H13 | | | | | | |
| | VREF8C | VREF8C | VREF8C | | | | G19 | H17 | | | | | | |
| | VREF8B | VREF8B | VREF8B | | | | H22 | | | | | | | |
| | VREF8A | VREF8A | VREF8A | | | | H25 | G19 | | | | | | |
| | | VCCPT | | | | | J27 | G23 | | | | | | |
| | | VCCPT | | | | | U29 | R24 | | | | | | |
| | | VCCPT | | | | | AG27 | AC23 | | | | | | |
| | | VCCPT | | | | | AJ17 | AD15 | | | | | | |
| | | VCCPT | | | | | AG7 | AB6 | | | | | | |
| | | VCCPT | | | | | V6 | P5 | | | | | | |
| | | VCCPT | | | | | H8 | G6 | | | | | | |
| | | VCCPT | | | | | F18 | E14 | | | | | | |
| | | VCCPGM | | | | | AD24 | AA21 | | | | | | |
| | | VCCPGM | | | | | AD10 | Y8 | | | | | | |
| | | VCCBAT | | | | | G6 | F6 | | | | | | |
| | | NC | | | | | AC10 | V9 | | | | | | |
| | | NC | | | | | AK30 | AE25 | | | | | | |
| | | NC | | | | | M25 | U20 | | | | | | |
| | | NC | | | | | L11 | M9 | | | | | | |
| | | NC | | | | | L25 | L20 | | | | | | |
| | | NC | | | | | K26 | K10 | | | | | | |
| | | NC | | | | | J21 | | | | | | | |

Note:
(1) When not used as clocks, the CQn and DQSn pins can be used as DQ pins.



| Pin Name | Pin Type (1st and 2nd Function) | Pin Description |
|--|---------------------------------|--|
| Supply and Reference Pins | | |
| VCCL | Power | VCCL supplies power to the core voltage power supply pins. |
| VCC | Power | VCC supplies power to the periphery circuitry. |
| RUP[1..8]A | I/O, Input | Reference pins for I/O banks. The RUP pins share the same VCCIO with the I/O bank where they are located. The external precision resistor RUP must be connected to the designated RUP pin within the bank. If not required, this pin is a regular I/O pin. |
| RDN[1..8]A | I/O, Input | Reference pins for I/O banks. The RDN pins share the same GND with the I/O bank where they are located. The external precision resistor RDN must be connected to the designated RDN pin within the bank. If not required, this pin is a regular I/O pin. |
| VCCIO[1..8][A,B,C] | Power | These are I/O supply voltage pins for banks 1 through 8. Each bank can support a different voltage level. VCCIO supplies power to the output buffers for all LVDS, LVCMOS(1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.0 V, 3.3 V), HSTL(12, 15, 18), SSTL(15, 18, 2), 3.0-V PCI/PCI-X I/O, and LVTTTL(3.0 V, 3.3 V) I/O standards. VCCIO also supplies power to the input buffers used for LVCMOS(1.2 V, 1.5 V, 1.8 V, 2.5 V, 3.0 V, 3.3 V), 3.0-V PCI/PCI-X and LVTTTL(3.0 V, 3.3 V) I/O standards. |
| VREF[1..8][A,B,C] | Power | Input reference voltage for each I/O bank. If a bank uses a voltage-referenced I/O standard, then these pins are used as the voltage-referenced pins for the bank. |
| VCCA_PLL[L[1:4],R[1:4],T[1:2],B[1:2]] | Power | Analog power for PLLs[L[1:4],R[1:4],T[1:2],B[1:2]]. You must connect these pins to 2.5 V, even if the PLL is not used. You are advised to keep this pin isolated from other VCC for better jitter performance. |
| VCCD_PLL[L[1:4],R[1:4],T[1:2],B[1:2]] | Power | Digital power for PLLs[L[1:4],R[1:4],T[1:2],B[1:2]]. You must connect these pins to 1.1 V, even if the PLL is not used. |
| VCCPT | Power | Power supply for the programmable power technology. Connect to 2.5 V. |
| VCCPGM | Power | Power supply for configuration pins. Can be connected to 1.8 V, 2.5 V, 3.0 V, or 3.3 V depending on the particular design. |
| VCCPD[1..8][A,B,C] | Power | Dedicated power pins. This supply is used to power the I/O pre-drivers. This can be connected to 3.3 V, 3.0 V, or 2.5 V. VCCPD for 3.3-V I/O standard is 3.3 V, VCCPD for 3.0-V I/O standard is 3.0 V, and VCCPD for 2.5-V/1.8-V/1.2-V I/O standards is 2.5 V. |
| VCCBAT | Power | Battery back-up power supply for design security volatile key register. Connect to 2.5 V. |
| VCC_CLKIN[3,4,7,8] | Power | Differential clock input power supply for top and bottom I/O banks. Connect to 2.5 V. |
| GND | Ground | Device ground pins. |
| DNU | Do Not Use | Do not connect to power or ground or any other signal; must be left floating. |
| NC | No Connect | Do not drive signals into these pins. |
| Dedicated Configuration/JTAG Pins | | |
| nIO_PULLUP | Input | Dedicated input that chooses whether the internal pull-ups on the user I/O pins and dual-purpose I/O pins (nCSO, ASDO, DATA[7..0], CLKUSR, INIT_DONE, DEV_OE, DEV_CLRn) are on or off before and during configuration. A logic high (1.5 V, 1.8 V, 2.5 V, 3.0 V, or 3.3 V) turns off the weak pull-up, while a logic low turns them on. |
| TEMPDIODEp | Input | Pin used in conjunction with the temperature-sensing diode (bias-high input) inside the Stratix III device. |



| Pin Name | Pin Type (1st and 2nd Function) | Pin Description |
|--------------------------------|---------------------------------|---|
| TEMPDIODEn | Input | Pin used in conjunction with the temperature-sensing diode (bias-low input) inside the Stratix III device. |
| MSEL[3..0] | Input | Configuration input pins that set the Stratix III device configuration scheme. |
| nCE | Input | Dedicated active-low chip enable. When nCE is low, the device is enabled. When nCE is high, the device is disabled. |
| nCONFIG | Input | Dedicated configuration control input. Pulling this pin low during user mode will cause the FPGA to lose its configuration data, enter a reset state, and tri-state all I/O pins. Returning this pin to a logic high level will initiate reconfiguration. |
| CONF_DONE | Bidirectional (open-drain) | This is a dedicated configuration Done pin. As a status output, the CONF_DONE pin drives low before and during configuration. Once all configuration data is received without error and the initialization cycle starts, CONF_DONE is released. As a status input, CONF_DONE goes high after all data is received. Then the device initializes and enters user mode. It is not available as a user I/O pin. |
| nCEO | Output | Output that drives low when device configuration is complete. |
| nSTATUS | Bidirectional (open-drain) | This is a dedicated configuration status pin. The FPGA drives nSTATUS low immediately after power-up and releases it after POR time. As a status output, the nSTATUS is pulled low if an error occurs during configuration. As a status input, the device enters an error state when nSTATUS is driven low by an external source during configuration or initialization. It is not available as a user I/O pin. |
| PORSEL | Input | Dedicated input that selects between a POR time of 12 ms or 100 ms. A logic high (1.5 V, 1.8 V, 2.5 V, 3.0 V, 3.3 V) selects a POR time of 12 ms and a logic low selects POR time of 100 ms. |
| TCK | Input | Dedicated JTAG input pin. Connect TCK to GND if the JTAG circuitry is not used. |
| TMS | Input | Dedicated JTAG input pin. Connect TMS to VCCPD if the JTAG circuitry is not used. |
| TDI | Input | Dedicated JTAG input pin. Connect TDI to VCCPD if the JTAG circuitry is not used. |
| TDO | Output | Dedicated JTAG output pin. |
| TRST | Input | Dedicated active low JTAG input pin. TRST is used to asynchronously reset the JTAG boundary-scan circuit. |
| Clock and PLL Pins | | |
| CLK[1,3,8,10]p | Clock, Input | Dedicated high-speed clock input pins 1, 3, 8, and 10 that can also be used for data inputs. OCT Rd is not supported on these pins. |
| CLK[1,3,8,10]n | Clock, Input | Dedicated negative clock input pins for differential clock input that can also be used for data inputs. OCT Rd is not supported on these pins. |
| CLK[0,2,9,11]p | I/O, Clock | These pins can be used as I/O pins or clock input pins. OCT Rd is supported on these pins. |
| CLK[0,2,9,11]n | I/O, Clock | These pins can be used as I/O pins or negative clock input pins for differential clock inputs. OCT Rd is supported on these pins. |
| CLK[4..7,12..15]p | I/O, Clock | These pins can be used as I/O pins or clock input pins. OCT Rd is not supported on these pins. |
| CLK[4..7,12..15]n | I/O, Clock | These pins can be used as I/O pins or negative clock input pins for differential clock inputs. OCT Rd is not supported on these pins. |
| PLL_[L1,L4,R1,R4]_CLKp | Clock, Input | Dedicated clock input pins to PLL L1, L4, R1, and R4 respectively. |
| PLL_[L1,L4,R1,R4]_CLKn | Clock, Input | Dedicated negative clock input pins for differential clock input to PLL L1, L4, R1, and R4 respectively. |
| PLL_[L2,L3,R2,R3]_CLKOUT0n | I/O, Clock | Each left and right PLL supports 2 clock I/O pins, configured either as 2 single ended I/O or one differential I/O pair. When using both pins as single ended I/Os, PLL_#_CLKOUT0n can be the clock output while the PLL_#_FB_CLKOUT0p is the external feedback input pin. |
| PLL_[L2,L3,R2,R3]_FB_CLKOUT0p | I/O, Clock | |
| PLL_[T1,T2,B1,B2]_FBp/CLKOUT1 | I/O, Clock | Dual-purpose I/O pins that can be used as two single-ended outputs or one differential external feedback input pin. |
| PLL_[T1,T2,B1,B2]_FBn/CLKOUT2 | I/O, Clock | |
| PLL_[T1,T2,B1,B2]_CLKOUT[3,4] | I/O, Clock | These pins can be used as I/O pins or two single-ended clock output pins. |
| PLL_[T1,T2,B1,B2]_CLKOUT0[p,n] | I/O, Clock | I/O pins that be used as two single-ended clock output pins or one differential clock output pair. |



| Pin Name | Pin Type (1st and 2nd Function) | Pin Description |
|---|---------------------------------|--|
| Optional/Dual-Purpose Configuration Pins | | |
| nCSO | I/O Output | Dedicated output control signal from the Stratix III FPGA to the serial configuration device in AS mode that enables the configuration device. |
| ASDO | I/O Output | Control signal from the Stratix III FPGA to the serial configuration device in AS mode used to read out configuration data. |
| DCLK | Input (PS, FPP) Output (AS) | Dedicated configuration clock pin. In PS and FPP configuration modes, DCLK is used to clock configuration data from an external source into the Stratix III device. In AS mode, DCLK is an output from the Stratix III device that provides timing for the configuration interface. |
| CRC_ERROR | I/O, Output | Active-high signal that indicates that the error detection circuit has detected errors in the configuration SRAM bits. This pin is optional and is used when the CRC error detection circuit is enabled. |
| DEV_CLRn | I/O, Input | Optional pin that allows you to override all clears on all device registers. When this pin is driven low, all registers are cleared; when this pin is driven high (VCCPGM), all registers behave as programmed. |
| DEV_OE | I/O, Input | Optional pin that allows you to override all tri-states on the device. When this pin is driven low, all I/O pins are tri-stated; when this pin is driven high (VCCPGM), all I/O pins behave as defined in the design. |
| DATA0 | I/O, Input | Dual-purpose configuration data input pin. The DATA0 pin can be used for bit-wide configuration or as an I/O pin after configuration is complete. |
| DATA[7..1] | I/O, Input | Dual-purpose configuration data input pins. The DATA[7..0] pins can be used for byte-wide configuration or as regular I/O pins. These pins can also be used as user I/O pins after configuration. |
| INIT_DONE | I/O, Output (open-drain) | This is a dual-purpose pin and can be used as an I/O pin when not enabled as INIT_DONE. When enabled, a transition from low to high at the pin indicates when the device has entered user mode. If the INIT_DONE output is enabled, the INIT_DONE pin cannot be used as a user I/O pin after configuration. |
| CLKUSR | I/O, Input | Optional user-supplied clock input. Synchronizes the initialization of one or more devices. If this pin is not enabled for use as a user-supplied configuration clock, it can be used as a user I/O pin. |
| Differential I/O Pins | | |
| DIFFIO_RX[##]p/n | I/O, RX channel | These are true LVDS receiver channels on side and column I/O banks. Pins with a "p" suffix carry the positive signal for the differential channel. Pins with an "n" suffix carry the negative signal for the differential channel. If not used for differential signaling, these pins are available as user I/O pins. |
| DIFFIO_TX[##]p/n | I/O, TX channel | These are true LVDS transmitter channels on side I/O banks. Pins with a "p" suffix carry the positive signal for the differential channel. Pins with an "n" suffix carry the negative signal for the differential channel. If not used for differential signaling, these pins are available as user I/O pins. |
| DIFFOUT_[##]p/n | I/O, TX channel | These are emulated LVDS output channels. On column I/O banks, there are true LVDS input buffers, but no true LVDS output buffers. However, all column user I/Os, including I/Os with true LVDS input buffers, can be configured as emulated LVDS output buffers. Pins with a "p" suffix carry the positive signal for the differential channel. Pins with an "n" suffix carry the negative signal for the differential channel. If not used for differential signaling, these pins are available as user I/O pins. |
| External Memory Interface Pins | | |
| DQS[1..44][T,B], DQS[1..40][L,R] | I/O, DQS | Optional data strobe signal for use in external memory interfacing. These pins drive to dedicated DQS phase-shift circuitry. The shifted DQS signal can also drive to internal logic. |
| DQSn[1..44][T,B], DQSn[1..40][L,R] | I/O, DQSn | Optional complementary data strobe signal for use in QDRII SRAM. These pins drive to dedicated DQS phase-shift circuitry. |



| Pin Name | Pin Type (1st and 2nd Function) | Pin Description |
|----------------------------------|---------------------------------|---|
| DQ[1..44][T,B], DQ[1..40][L,R] | I/O, DQ | Optional data signal for use in external memory interfacing. The order of the DQ bits within a designated DQ bus is not important; however, use caution when making pin assignments if you plan on migrating to a different memory interface that has a different DQ bus width. Analyze the available DQ pins across all pertinent DQS columns in the pin list. |
| CQ[1..44][T,B], CQ[1..40][L,R] | DQS | Optional data strobe signal for use in QDRII SRAM. These are the pins for echo clocks. |
| CQn[1..44][T,B], CQn[1..40][L,R] | DQS | Optional complementary data strobe signal for use in QDRII SRAM. These are the pins for echo clocks. |

Notes:

(1) The pin definitions are prepared based on the device with the largest density, EP3SL340. Refer to the pin list for the availability of pins in each density.

(2) Some of the pull-up or pull-down resistors mentioned in the table above may not be required, depending on the exact device configuration scheme.

Should you be required to use a different configuration scheme, the ability to NC or short them may be valuable during the debug phase.

For more information, refer to the *Configuring Stratix III Devices* chapter in volume 1 of the *Stratix III Device Handbook*.

| | | | | | | | | | | | | | |
|--------|----|--------|--|--------|--|--------|--------|--------|--|--------|--|--------|--------|
| 8A | | 8B | | 8C | | PLL_T1 | PLL_T2 | 7C | | 7B | | 7A | |
| VREF8A | | VREF8B | | VREF8C | | | | VREF7C | | VREF7B | | VREF7A | |
| VREF1A | 1A | | | | | | | | | | | 6A | VREF6A |
| VREF1B | 1B | | | | | | | | | | | 6B | VREF6B |
| VREF1C | 1C | | | | | | | | | | | 6C | VREF6C |
| PLL_L2 | | | | | | | | | | | | PLL_R2 | |
| PLL_L3 | | | | | | | | | | | | PLL_R3 | |
| VREF2C | 2C | | | | | | | | | | | 5C | VREF5C |
| VREF2B | 2B | | | | | | | | | | | 5B | VREF5B |
| VREF2A | 2A | | | | | | | | | | | 5A | VREF5A |
| 3A | | 3B | | 3C | | PLL_B1 | PLL_B2 | 4C | | 4B | | 4A | |
| VREF3A | | VREF3B | | VREF3C | | | | VREF4C | | VREF4B | | VREF4A | |

Note:

1. This is only a pictorial representation to provide an idea of placement on the device. Refer to the pin list and the Quartus® II software for exact locations



**Pin Information for the Stratix® III EP3E110 Device
Version 1.1**

| Version Number | Date | Changes Made |
|-----------------------|-------------|--|
| 1.0 | 11/16/2007 | Initial Release |
| 1.1 | 3/21/2008 | Updated naming convention for DQ/DQS group to match pin planner in Quartus II software and ORCAD symbol files. |