

| Bank Number | VREF     | Pin Name/Function | Optional Function(s) | Configuration Function | Dedicated Tx/Rx Channel | Emulated LVDS Output Channel | IO Performance | V81 |
|-------------|----------|-------------------|----------------------|------------------------|-------------------------|------------------------------|----------------|-----|
| 1A          | VREFB1N0 | IO                |                      |                        | DIFFIO_RX_L1n           | DIFFOUT_L1n                  | Low_Speed      | C2  |
| 1A          | VREFB1N0 | IO                |                      |                        | DIFFIO_RX_L1p           | DIFFOUT_L1p                  | Low_Speed      | C1  |
| 1B          | VREFB1N0 | IO                |                      | JTAGEN                 |                         |                              |                | D2  |
| 1B          | VREFB1N0 | IO                |                      | TMS                    | DIFFIO_RX_L11n          | DIFFOUT_L11n                 | Low_Speed      | D3  |
| 1B          | VREFB1N0 | IO                |                      | TCK                    | DIFFIO_RX_L11p          | DIFFOUT_L11p                 | Low_Speed      | D4  |
| 1B          | VREFB1N0 | IO                |                      | TDI                    | DIFFIO_RX_L12n          | DIFFOUT_L12n                 | Low_Speed      | E1  |
| 1B          | VREFB1N0 | IO                |                      | TDO                    | DIFFIO_RX_L12p          | DIFFOUT_L12p                 | Low_Speed      | E2  |
| 1B          | VREFB1N0 | IO                |                      |                        |                         |                              |                | E3  |
| 2           | VREFB2N0 | IO                | CLK0n                |                        | DIFFIO_RX_L18n          | DIFFOUT_L18n                 | High_Speed     | F1  |
| 2           | VREFB2N0 | IO                | CLK0p                |                        | DIFFIO_RX_L18p          | DIFFOUT_L18p                 | High_Speed     | F2  |
| 2           | VREFB2N0 | IO                | CLK1n                |                        | DIFFIO_RX_L20n          | DIFFOUT_L20n                 | High_Speed     | G2  |
| 2           | VREFB2N0 | IO                | CLK1p                |                        | DIFFIO_RX_L20p          | DIFFOUT_L20p                 | High_Speed     | G1  |
| 2           | VREFB2N0 | IO                |                      |                        | DIFFIO_RX_L27n          | DIFFOUT_L27n                 | High_Speed     | F3  |
| 2           | VREFB2N0 | IO                |                      |                        | DIFFIO_RX_L27p          | DIFFOUT_L27p                 | High_Speed     | G3  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B1n        | DIFFOUT_B1n                  | High_Speed     | H3  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B1p        | DIFFOUT_B1p                  | High_Speed     | J2  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B3n        | DIFFOUT_B3n                  | High_Speed     | G4  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B3p        | DIFFOUT_B3p                  | High_Speed     | G5  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B5n        | DIFFOUT_B5n                  | High_Speed     | J3  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B5p        | DIFFOUT_B5p                  | High_Speed     | H4  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B9n        | DIFFOUT_B9n                  | High_Speed     | J4  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B9p        | DIFFOUT_B9p                  | High_Speed     | J5  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B12n       | DIFFOUT_B12n                 | High_Speed     | H6  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B12p       | DIFFOUT_B12p                 | High_Speed     | J6  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B14n       | DIFFOUT_B14n                 | High_Speed     | G6  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B14p       | DIFFOUT_B14p                 | High_Speed     | H7  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B16n       | DIFFOUT_B16n                 | High_Speed     | J7  |
| 3           | VREFB3N0 | IO                |                      |                        | DIFFIO_TX_RX_B16p       | DIFFOUT_B16p                 | High_Speed     | J8  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R1p           | DIFFOUT_R1p                  | High_Speed     | G7  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R1n           | DIFFOUT_R1n                  | High_Speed     | F7  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R7p           | DIFFOUT_R7p                  | High_Speed     | G8  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R7n           | DIFFOUT_R7n                  | High_Speed     | G9  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R10p          | DIFFOUT_R10p                 | High_Speed     | F8  |
| 5           | VREFB5N0 | IO                |                      |                        | DIFFIO_RX_R10n          | DIFFOUT_R10n                 | High_Speed     | F9  |
| 6           | VREFB6N0 | IO                | CLK2p                |                        | DIFFIO_RX_R14p          | DIFFOUT_R14p                 | High_Speed     | E8  |
| 6           | VREFB6N0 | IO                | CLK2n                |                        | DIFFIO_RX_R14n          | DIFFOUT_R14n                 | High_Speed     | E7  |
| 6           | VREFB6N0 | IO                | CLK3p                |                        | DIFFIO_RX_R16p          | DIFFOUT_R16p                 | High_Speed     | D8  |
| 6           | VREFB6N0 | IO                | CLK3n                |                        | DIFFIO_RX_R16n          | DIFFOUT_R16n                 | High_Speed     | D9  |
| 6           | VREFB6N0 | IO                |                      |                        | DIFFIO_RX_R27p          | DIFFOUT_R27p                 | High_Speed     | C8  |
| 6           | VREFB6N0 | IO                |                      |                        | DIFFIO_RX_R27n          | DIFFOUT_R27n                 | High_Speed     | C9  |
| 6           | VREFB6N0 | IO                | PLL_R_CLKOUTp        |                        | DIFFIO_RX_R33p          | DIFFOUT_R33p                 | High_Speed     | C7  |
| 6           | VREFB6N0 | IO                | PLL_R_CLKOUTn        |                        | DIFFIO_RX_R33n          | DIFFOUT_R33n                 | High_Speed     | B7  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T16p          | DIFFOUT_T16p                 | Low_Speed      | A7  |
| 8           | VREFB8N0 | IO                |                      | DEV_CLRn               | DIFFIO_RX_T16n          | DIFFOUT_T16n                 | Low_Speed      | B6  |
| 8           | VREFB8N0 | IO                |                      | DEV_OE                 | DIFFIO_RX_T18p          | DIFFOUT_T18p                 | Low_Speed      | A6  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T18n          | DIFFOUT_T18n                 | Low_Speed      | A5  |
| 8           | VREFB8N0 | IO                |                      | CONFIG_SEL             |                         |                              |                | C6  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T19p          | DIFFOUT_T19p                 | Low_Speed      | A4  |
| 8           | VREFB8N0 | Input_only        |                      | nCONFIG                |                         |                              |                | D6  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T19n          | DIFFOUT_T19n                 | Low_Speed      | B5  |
| 8           | VREFB8N0 | IO                |                      | CRC_ERROR              |                         |                              |                | C5  |
| 8           | VREFB8N0 | IO                |                      |                        |                         |                              |                | A3  |
| 8           | VREFB8N0 | IO                |                      | nSTATUS                | DIFFIO_RX_T24p          | DIFFOUT_T24p                 | Low_Speed      | B3  |
| 8           | VREFB8N0 | IO                |                      | CONF_DONE              | DIFFIO_RX_T24n          | DIFFOUT_T24n                 | Low_Speed      | A2  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T26p          | DIFFOUT_T26p                 | Low_Speed      | C4  |
| 8           | VREFB8N0 | IO                |                      |                        | DIFFIO_RX_T26n          | DIFFOUT_T26n                 | Low_Speed      | C3  |
|             |          | GND               |                      |                        |                         |                              |                | H9  |
|             |          | GND               |                      |                        |                         |                              |                | H5  |
|             |          | GND               |                      |                        |                         |                              |                | H1  |
|             |          | GND               |                      |                        |                         |                              |                | F6  |
|             |          | GND               |                      |                        |                         |                              |                | F4  |
|             |          | GND               |                      |                        |                         |                              |                | E9  |
|             |          | GND               |                      |                        |                         |                              |                | E5  |
|             |          | GND               |                      |                        |                         |                              |                | D7  |
|             |          | GND               |                      |                        |                         |                              |                | D1  |
|             |          | GND               |                      |                        |                         |                              |                | B4  |
|             |          | GND               |                      |                        |                         |                              |                | A9  |
|             |          | GND               |                      |                        |                         |                              |                | A1  |
|             |          | VCC               |                      |                        |                         |                              |                | H8  |
|             |          | VCC               |                      |                        |                         |                              |                | H2  |
|             |          | VCC               |                      |                        |                         |                              |                | B9  |
|             |          | VCC               |                      |                        |                         |                              |                | B2  |
|             |          | VCCD_PLL2         |                      |                        |                         |                              |                | A8  |
|             |          | VCCIO1_2          |                      |                        |                         |                              |                | E4  |
|             |          | VCCIO3            |                      |                        |                         |                              |                | F5  |
|             |          | VCCIO5_6          |                      |                        |                         |                              |                | E6  |
|             |          | VCCIO8            |                      |                        |                         |                              |                | D5  |
|             |          | VCCA1             |                      |                        |                         |                              |                | J1  |
|             |          | VCCA2             |                      |                        |                         |                              |                | B8  |
|             |          | VCCA3             |                      |                        |                         |                              |                | B1  |
|             |          | VCCA4             |                      |                        |                         |                              |                | J9  |

**Note:**  
(1) For more information about pin definition and pin connection guidelines, refer to the [MAX 10 FPGA Device Family Pin Connection Guidelines](#).

| Date           | Version    | Changes Made   |
|----------------|------------|--|
| September 2014 | 2014.09.22 | Initial release.   |
| December 2014  | 2014.12.15 | -Updated the BOOT_SEL pin name to CONFIG_SEL pin name.<br>-Removed differential pair pins for non-differential function support. |
| August 2015    | 2015.08.21 | Removed Pin List F256, Pin List U324, and Pin List F484.   |
| December 2016  | 2016.12.23 | Removed I/O performance for single-ended pins.   |
| February 2017  | 2017.02.21 | Rebranded as Intel.  |