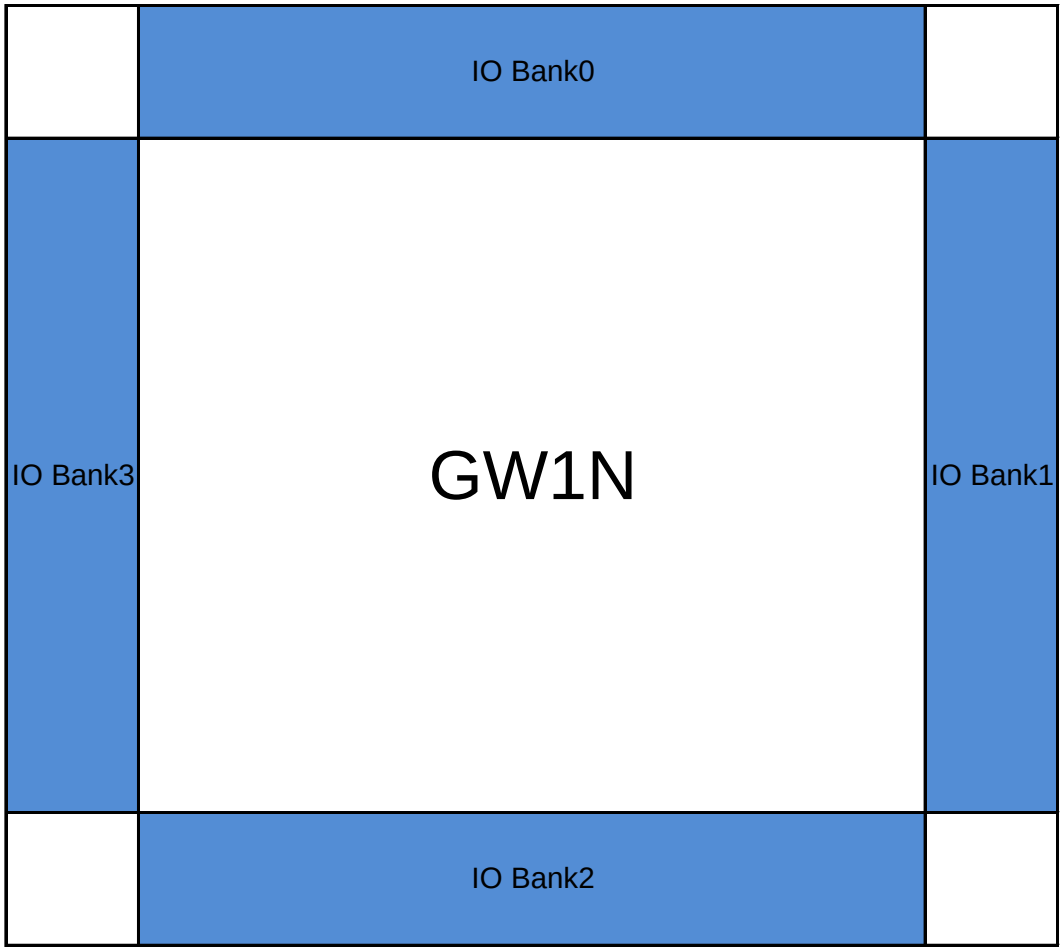
| Date | Version | Description |
|---|---|---|
| 03/01/2016 | 1.05E | Initial version published. |
| 04/20/2016 | 1.06E | The info. of pin list and True LVDS for GW1N-2 & GW1N-4 updated. |
| 06/16/2016 | 1.07E | Pin K11 of PG256 package added. |
| 06/22/2016 | 1.08E | Pin A2 of PG256 package updated. |
| 07/04/2016 | 1.09E | This version is the Pinout manual for the Production version of the GW1N-2/4 device. The assignment of the dual-purpose function R_PLL_in has been updated from IOR2A/B to IOR3A/B. R_PLL_in has been packaged in the LQ100, LQ144, MG160 and PG256 packages, but not in the package CS72. |
| 07/18/2016 | 1.10E | The True LVDS corresponding to the IOR2A/B in BANK 1 of LQ100, LQ144 and MG160 packages are not packaged.<br>The info. of Package QN32 added.<br>Other pin info. of MG160 package for GW1N-2/4. |
| 02/18/2019 | 1.2E | Recommended operating conditions of VCC UV version updated. |
| 05/15/2019 | 1.3E | Recommended operating conditions of VCCO UV version updated. |
| 03/03/2020 | 1.4E | The info. of MG132X package added. |
| 03/30/2020 | 1.5E | The info. of MG132X package added.<br>The pin descriptions of MODE0/MODE1/MODE2 added.<br>The info. of Power improved. |
| 04/16/2020 | 1.6E | The info. of GW1N-2/GW1N-2B devices removed. |
| 10/12/2021 | 1.7E | Pin definitions updated. |
| 03/25/2022 | 1.8E | The info. of  UG169 package added. |
| 06/10/2022 | 1.8.1E | Pin G5 and H6 of UG169 package updated. |
| 10/20/2022 | 1.8.2E | The note in Power sheet updated.<br>The note in Pin Definitions sheet updated. |
| 05/04/2023 | 1.8.3E | The description of CLKHOLD_N pin in Pin Definitions sheet updated.<br>The notes of QN48, QN32, and QN88 packages in Power sheet updated. |
| 06/30/2023 | 1.8.4E | The descriptions of pin definitions and info. for MODE0, MODE1, MODE2 pins optimized. |

| Pin Name | I/O | Description |
|---|---|---|
| **User I/O** | | |
| IO[End][Row/Column Number][A/B] | I/O | [End] indicates the pin location, including L(left), R(right), B(bottom), and T(top). |
| | | [Row/Column Number] indicates the pin row/column number. If [End] is T(top) or B(bottom), the pin indicates the column number of the corresponding CFU. If [End] is L(left) or R(right), the pin indicates the row number of the corresponding CFU. |
| | | [A/B] indicates differential signal pair information. |
| **Multi-Function Pins** | | |
| IO[End][Row/Column Number][A/B]/MMM | | /MMM represents one or more of the other functions in addition to being general purpose user I/O. When these functions are not in use, these pins can be used as user I/O. |
| D0 | I/O | Data port D0 in CPU mode |
| D1 | I/O | Data port D1 in CPU mode |
| D2 | I/O | Data port D2 in CPU mode |
| D3 | I/O | Data port D3 in CPU mode |
| D4 | I/O | Data port D4 in CPU mode |
| D5 | I/O | Data port D5 in CPU mode |
| D6 | I/O | Data port D6 in CPU mode |
| D7 | I/O | Data port D7 in CPU mode |
| WE_N | I | Select data input/output of D[7:0] in CPU mode.0: Write;1: Read. |
| DOUT | O | Data output in SERIAL mode |
| DIN | I, internal weak pull-up | Data input in SERIAL mode |
| TMS | I, internal weak pull-up | Serial mode input in JTAG mode |
| TCK | I | Serial clock input in JTAG mode |
| TDO | O | Serial data output in JTAG mode |
| TDI | I, internal weak pull-up | Serial data input in JTAG mode |
| JTAGSEL_N | I, internal weak pull-up | Reconfigure JTAG download function signal |
| RECONFIG_N | I, internal weak pull-up | Global reset GowinCONFIG logic signal, active low |
| FASTRD_N | I | Access SPI FLASH to select signal. Low, Fast Read mode; High, Read mode. |
| DONE[1] | O | High, the programming configuration has been completed successfully;<br>Low, the programming configuration has not been completed or failed. |
| | I | When the DONE signal is low, delay the chip to activate. Activate the chip until the DONE signal is high. |
| READY[1] | I/O | High, the device can be programmed and configured currently;<br>Low, the device cannot be programmed and configured currently. |
| MI | I | MI in MSPI mode |

| Pin Name | I/O | Description |
|---|---|---|
| MO | O | MO in MSPI mode |
| MCS_N | O | Enable signal MCS_N in MSPI mode, active-low |
| MCLK | O | Clock output MCLK in MSPI mode, with default frequency of 2.5Mhz |
| SCLK | I | Clock input in SSPI, SERIAL, and CPU modes |
| SO | O | SO in SSPI mode |
| SI | I/O | SI in SSPI mode |
| SSPI_CS_N | I/O | Enable signal SSPI_CS_N in SSPI mode, active-low, and internal weak pull-up |
| CLKHOLD_N | I, internal weak pull-up | Active-high in SSPI mode;<br>Active-low in CPU mode. |
| GCLKC_[x] | I | Differential input pin of GCLKT_[x], C(Comp), [x]: global clock No.[2] |
| GCLKT_[x] | I | Global clock input pin, T(True), [x]: global clock No. |
| LPLL_C_fb/RPLL_C_fb | I | Left/Right PLL feedback input pin, C(Comp) |
| LPLL_T_fb/RPLL_T_fb | I | Left/Right PLL feedback input pin, T(True) |
| LPLL_C_in/RPLL_C_in | I | Left/Right PLL clock input pin, C(Comp) |
| LPLL_T_in/RPLL_T_in | I | Left/Right PLL clock input pin, T(True) |
| MODE2 | I, internal weak pull-up | GowinCONFIG modes selection pin; if this pin is marked as “VCCIO”, it's internally powered; if this pin is marked as "GND", it's internally grounded. |
| MODE1 | I, internal weak pull-up | GowinCONFIG modes selection pin; if this pin is marked as “VCCIO”, it's internally powered; if this pin is marked as "GND", it's internally grounded. |
| MODE0 | I, internal weak pull-up | GowinCONFIG modes selection pin; if this pin is marked as “VCCIO”, it's internally powered; if this pin is marked as "GND", it's internally grounded. |
| **Other Pins** | | |
| NC | NA | Reserved |
| VSS | NA | Ground |
| VCC | NA | Power supply pin of core voltage |
| VCCIO# | NA | Power supply pin of I/O voltage for I/O BANK# |
| VCCX | NA | Power supply pin of auxiliary voltage |

**Note!**
[1] The default state of READY and DONE is open-drain output, internal weak pull-up. DONE outputs 0 during configuration.
[2] When the input is single-ended, GCLKC_[x] pin is not a global clock.




**Note!**

[1] Each Bank has independent reference voltage (VREF).

[2] You can select to use IOB internal VREF (equals to 0.5 X VCCIO).

[3] You can also select to use external VREF input (use any I/O pins as external VREF input).

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOB10A | I/O | 2 | | True_of_IOB10B | NONE | | | | 29 | 31 | J13 | 44 | N4 | | C1 | R3 |
| IOB10B | I/O | 2 | | Comp_of_IOB10A | NONE | | | | 30 | 32 | K12 | 45 | P4 | | D2 | R4 |
| IOB11A | I/O | 2 | | True_of_IOB11B | NONE | | | | | | | 46 | N5 | | E1 | P5 |
| IOB11B | I/O | 2 | | Comp_of_IOB11A | NONE | | | | | | | 47 | P5 | | F2 | R5 |
| IOB12A | I/O | 2 | | True_of_IOB12B | TRUE | | 15 | D6 | 31 | 33 | J12 | 48 | L6 | M7 | F4 | M7 |
| IOB12B | I/O | 2 | | Comp_of_IOB12A | TRUE | | 16 | E6 | 32 | 34 | J14 | 49 | M6 | N6 | G6 | M8 |
| IOB13A | I/O | 2 | | True_of_IOB13B | NONE | | | | | | | | | | F3 | R6 |
| IOB13B | I/O | 2 | | Comp_of_IOB13A | NONE | | | | | | | | | | F1 | P6 |
| IOB14A | I/O | 2 | | True_of_IOB14B | TRUE | | | H6 | 33 | 35 | | 50 | L7 | N8 | G5 | T4 |
| IOB14B | I/O | 2 | | Comp_of_IOB14A | TRUE | | | G6 | | 36 | | 51 | M7 | N7 | G4 | T5 |
| IOB15A | I/O | 2 | | True_of_IOB15B | NONE | | | | 34 | | | | | | G2 | N7 |
| IOB15B | I/O | 2 | | Comp_of_IOB15A | NONE | | | | | | | | | | G3 | P7 |
| IOB16A | I/O | 2 | | True_of_IOB16B | TRUE | | | | | | G12 | 52 | N6 | K6 | F5 | T6 |
| IOB16B | I/O | 2 | | Comp_of_IOB16A | TRUE | | | | | | G14 | 54 | P6 | J6 | H6 | T7 |
| IOB17A | I/O | 2 | | True_of_IOB17B | NONE | | | | | | | | | M9 | G1 | R7 |
| IOB17B | I/O | 2 | | Comp_of_IOB17A | NONE | | | | | | | | | M8 | H2 | T8 |
| IOB18A | I/O | 2 | | True_of_IOB18B | TRUE | | 17 | | | | | | | K7 | H4 | N8 |
| IOB18B | I/O | 2 | | Comp_of_IOB18A | TRUE | | 18 | | | | | | | J7 | J6 | P8 |
| IOB19A/GCLKT_5 | I/O | 2 | GCLKT_5 | True_of_IOB19B | NONE | | | | | 39 | G13 | 56 | N7 | N12 | J1 | R8 |
| IOB19B/GCLKC_5 | I/O | 2 | GCLKC_5 | Comp_of_IOB19A | NONE | | | | | 40 | H12 | 57 | P7 | N11 | J3 | T9 |
| IOB20A/GCLKT_4 | I/O | 2 | GCLKT_4 | True_of_IOB20B | TRUE | 4 | 19 | G5 | 35 | 41 | | 58 | L8 | M12 | L2 | T10 |
| IOB20B/GCLKC_4 | I/O | 2 | GCLKC_4 | Comp_of_IOB20A | TRUE | 5 | 20 | F5 | 36 | 42 | | 59 | M8 | M13 | M1 | R9 |
| IOB21A | I/O | 2 | | True_of_IOB21B | NONE | | | | | | | 60 | L9 | | H3 | P9 |
| IOB21B | I/O | 2 | | Comp_of_IOB21A | NONE | | | | | | | 61 | M9 | | H1 | N9 |
| IOB22A | I/O | 2 | | True_of_IOB22B | TRUE | | | D4 | | | F13 | 62 | N8 | | J2 | T11 |
| IOB22B | I/O | 2 | | Comp_of_IOB22A | TRUE | | | D5 | | | F14 | 63 | P8 | | K1 | R10 |
| IOB23A | I/O | 2 | | True_of_IOB23B | NONE | | | | | | | | | | H5 | P10 |
| IOB23B | I/O | 2 | | Comp_of_IOB23A | NONE | | | | | | | | | | J4 | R11 |
| IOB24A | I/O | 2 | | True_of_IOB24B | TRUE | | | E4 | | 43 | E13 | 64 | N9 | | K3 | M9 |
| IOB24B | I/O | 2 | | Comp_of_IOB24A | TRUE | | | E5 | | 44 | F12 | 65 | P9 | | K2 | M10 |
| IOB25A | I/O | 2 | | True_of_IOB25B | NONE | | | | | | | | | | J5 | T12 |
| IOB25B | I/O | 2 | | Comp_of_IOB25A | NONE | | | | | | | | | | K6 | R12 |
| IOB26A | I/O | 2 | | True_of_IOB26B | TRUE | | 21 | H4 | | 45 | E12 | 66 | L10 | N9 | L1 | N10 |
| IOB26B | I/O | 2 | | Comp_of_IOB26A | TRUE | | 22 | G4 | 37 | 46 | E14 | 67 | M10 | N10 | L3 | P11 |
| IOB27A | I/O | 2 | | True_of_IOB27B | NONE | | | | | | | | | | K4 | T13 |
| IOB27B | I/O | 2 | | Comp_of_IOB27A | NONE | | | | 38 | | | | | | L5 | R13 |
| IOB28A | I/O | 2 | | True_of_IOB28B | NONE | | | | 39 | | | 68 | N10 | | K5 | N11 |
| IOB28B | I/O | 2 | | Comp_of_IOB28A | NONE | | | | 40 | | | 69 | P10 | | L4 | P12 |
| IOB29A | I/O | 2 | | True_of_IOB29B | NONE | | | | | | | | | | N2 | R14 |
| IOB29B | I/O | 2 | | Comp_of_IOB29A | NONE | | | | | | | | | | P1 | T15 |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOB2A | I/O | 2 | | True_of_IOB2B | TRUE | | | | 17 | | N13 | | | L4 | A4 | L3 |
| IOB2B | I/O | 2 | | Comp_of_IOB2A | TRUE | | | | 18 | | N14 | | | L5 | C5 | M3 |
| IOB30A | I/O | 2 | | True_of_IOB30B | TRUE | | | F4 | 41 | 47 | C14 | 70 | P11 | | M3 | N12 |
| IOB30B | I/O | 2 | | Comp_of_IOB30A | TRUE | | | F3 | 42 | 48 | D12 | 71 | N11 | | N1 | P13 |
| IOB31A | I/O | 2 | | True_of_IOB31B | NONE | | | | | | | | | | M2 | M11 |
| IOB31B | I/O | 2 | | Comp_of_IOB31A | NONE | | | | | | | | | | N3 | L11 |
| IOB32A | I/O | 2 | | True_of_IOB32B | TRUE | | 23 | H3 | | 49 | B14 | | P12 | L11 | R1 | P15 |
| IOB32B | I/O | 2 | | Comp_of_IOB32A | TRUE | | 24 | G3 | | 50 | C13 | | N12 | M11 | P2 | R16 |
| IOB33A | I/O | 2 | | True_of_IOB33B | NONE | | | | | | | | P13 | | P4 | M12 |
| IOB33B | I/O | 2 | | Comp_of_IOB33A | NONE | | | | | | | | | | T4 | N13 |
| IOB34A | I/O | 2 | | True_of_IOB34B | TRUE | | | | | 55 | | 75 | M14 | K8 | T2 | M13 |
| IOB34B | I/O | 2 | | Comp_of_IOB34A | TRUE | | | | | 53 | | 72 | N14 | J8 | R3 | L12 |
| IOB35A | I/O | 2 | | True_of_IOB35B | NONE | | | | | | | | K13 | | R5 | N14 |
| IOB35B | I/O | 2 | | Comp_of_IOB35A | NONE | | | | | | | | L14 | | P5 | P14 |
| IOB36A | I/O | 2 | | True_of_IOB36B | TRUE | | | G1 | | | | 78 | J13 | L10 | T3 | N16 |
| IOB36B | I/O | 2 | | Comp_of_IOB36A | TRUE | | | G2 | 47 | | | 76 | L13 | M10 | R4 | N15 |
| IOB37A | I/O | 2 | | True_of_IOB37B | NONE | | | | | | | | | | T5 | L13 |
| IOB37B | I/O | 2 | | Comp_of_IOB37A | NONE | | | | | | | | | | R6 | L14 |
| IOB3A | I/O | 2 | | True_of_IOB3B | NONE | | | | | | | | | | D6 | |
| IOB3B | I/O | 2 | | Comp_of_IOB3A | NONE | | | | | | | | | | E7 | |
| IOB4A | I/O | 2 | | True_of_IOB4B | TRUE | 32 | | | 19 | | M12 | | | M5 | A3 | N1 |
| IOB4B | I/O | 2 | | Comp_of_IOB4A | TRUE | 1 | | | 20 | 22 | M14 | 32 | L1 | M4 | B4 | N2 |
| IOB5A | I/O | 2 | | True_of_IOB5B | NONE | | | | | | | | | J5 | A5 | L4 |
| IOB5B | I/O | 2 | | Comp_of_IOB5A | NONE | | | | | 23 | | 34 | M1 | K5 | B6 | L5 |
| IOB6A | I/O | 2 | | True_of_IOB6B | TRUE | | 13 | H7 | 25 | 27 | L14 | 38 | N1 | | B1 | P2 |
| IOB6B | I/O | 2 | | Comp_of_IOB6A | TRUE | | 14 | G7 | 26 | 28 | M13 | 39 | P2 | | C2 | N3 |
| IOB7A | I/O | 2 | | True_of_IOB7B | NONE | | | | | | | 40 | N3 | | D3 | N6 |
| IOB7B | I/O | 2 | | Comp_of_IOB7A | NONE | | | | | | | 41 | P3 | | D1 | M6 |
| IOB8A | I/O | 2 | | True_of_IOB8B | TRUE | | | F7 | 27 | 29 | K13 | 42 | L5 | N5 | E2 | P4 |
| IOB8B | I/O | 2 | | Comp_of_IOB8A | TRUE | | | F6 | 28 | 30 | K14 | 43 | M5 | N4 | E3 | N5 |
| IOB9A | I/O | 2 | | True_of_IOB9B | NONE | | | | | | | | | | B3 | T2 |
| IOB9B | I/O | 2 | | Comp_of_IOB9A | NONE | | | | | | | | | | A2 | R1 |
| IOL10A/TMS | I/O | 3 | TMS | True_of_IOL10B | NONE | 24 | 4 | D8 | 5 | 8 | A6 | 13 | F1 | G1 | B8 | N4 |
| IOL10B/TCK | I/O | 3 | TCK | Comp_of_IOL10A | NONE | 25 | 5 | D7 | 6 | 9 | B6 | 14 | G1 | G2 | A7 | P3 |
| IOL10C/SCLK | I/O | 3 | SCLK | True_of_IOL10D | NONE | | | D3 | | 10 | | 15 | F3 | | C10 | K5 |
| IOL10D/TDI | I/O | 3 | TDI | Comp_of_IOL10C | NONE | 27 | 6 | E7 | 7 | 11 | B4 | 16 | G4 | F5 | A6 | L6 |
| IOL10E/TDO | I/O | 3 | TDO | True_of_IOL10F | NONE | 28 | 7 | E8 | 8 | 12 | A4 | 18 | G3 | F6 | C6 | M5 |
| IOL10F/RECONFIG_N | I/O | 3 | RECONFIG_N | Comp_of_IOL10E | NONE | 29 | 8 | | 9 | 14 | C10 | 20 | H3 | H1 | B10 | M4 |
| IOL10G/DONE | I/O | 3 | DONE | True_of_IOL10H | NONE | 30 | 9 | | 10 | 15 | A13 | 21 | J4 | H4 | C13 | G3 |
| IOL10H/READY | I/O | 3 | READY | Comp_of_IOL10G | NONE | | | | | 16 | B13 | 22 | H2 | H5 | A13 | G2 |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOL10I | I/O | 3 | | True_of_IOL10J | NONE | | | | | | | 23 | H1 | | F9 | H4 |
| IOL10J | I/O | 3 | | Comp_of_IOL10I | NONE | | | | | | | 24 | K3 | | E11 | H3 |
| IOL11A/GCLKT_6 | I/O | 3 | GCLKT_6 | True_of_IOL11B | TRUE | | 10 | F9 | 11 | 17 | A7 | 25 | J2 | G4 | C8 | J5 |
| IOL11B/GCLKC_6 | I/O | 3 | GCLKC_6 | Comp_of_IOL11A | TRUE | | 11 | F8 | | 18 | B7 | 26 | J3 | F4 | A8 | J4 |
| IOL12A | I/O | 3 | | True_of_IOL12B | NONE | | | | | | | | | H3 | B9 | G1 |
| IOL12B | I/O | 3 | | Comp_of_IOL12A | NONE | | | | | | | | | H2 | A10 | H2 |
| IOL13A | I/O | 3 | | True_of_IOL13B | TRUE | | | G9 | | 19 | B5 | 27 | J1 | J2 | F8 | H1 |
| IOL13B | I/O | 3 | | Comp_of_IOL13A | TRUE | | | G8 | | 20 | C6 | 28 | K1 | J1 | D9 | J1 |
| IOL14A | I/O | 3 | | True_of_IOL14B | NONE | | | | | | | | | L1 | D8 | J3 |
| IOL14B | I/O | 3 | | Comp_of_IOL14A | NONE | | | | | | | | | L2 | E9 | J2 |
| IOL15A | I/O | 3 | | True_of_IOL15B | TRUE | | | | 13 | | A3 | 29 | K2 | M2 | B7 | K1 |
| IOL15B | I/O | 3 | | Comp_of_IOL15A | TRUE | | | | 14 | | C4 | 30 | L2 | M1 | C7 | K2 |
| IOL16A | I/O | 3 | | True_of_IOL16B | NONE | | | | | | | | | N3 | F7 | L1 |
| IOL16B | I/O | 3 | | Comp_of_IOL16A | NONE | | | | | | | | | N2 | E8 | L2 |
| IOL17A | I/O | 3 | | True_of_IOL17B | TRUE | | | | 15 | | A2 | | | L3 | C4 | K3 |
| IOL17B | I/O | 3 | | Comp_of_IOL17A | TRUE | | | | 16 | | B3 | | | M3 | B5 | K4 |
| IOL18A | I/O | 3 | | True_of_IOL18B | NONE | | | | | | | | | K2 | E6 | M1 |
| IOL18B | I/O | 3 | | Comp_of_IOL18A | NONE | | | | | | | | | K1 | D7 | M2 |
| IOL2A | I/O | 3 | | True_of_IOL2B | TRUE | | | | 3 | | C12 | 3 | C1 | C2 | B14 | C2 |
| IOL2B | I/O | 3 | | Comp_of_IOL2A | TRUE | | | | | | A12 | | D2 | D1 | A15 | D3 |
| IOL3A/JTAGSEL_N/LPLL_T_in | I/O | 3 | JTAGSEL_N/LPLL_T_in | True_of_IOL3B | NONE | | 3 | B7 | 4 | 3 | B9 | 4 | E2 | E5 | C12 | E4 |
| IOL3B/LPLL_C_in | I/O | 3 | LPLL_C_in | Comp_of_IOL3A | NONE | | | C7 | | 5 | | 6 | E3 | | B12 | E3 |
| IOL4A/LPLL_T_fb | I/O | 3 | LPLL_T_fb | True_of_IOL4B | TRUE | | | B9 | | | | 7 | E4 | E4 | B13 | D2 |
| IOL4B/LPLL_C_fb | I/O | 3 | LPLL_C_fb | Comp_of_IOL4A | TRUE | | | B8 | | | | 8 | F4 | E3 | A14 | D1 |
| IOL5A | I/O | 3 | | True_of_IOL5B | NONE | | | | | | A11 | | | B1 | F10 | F5 |
| IOL5B | I/O | 3 | | Comp_of_IOL5A | NONE | | | | | | B12 | | | C1 | D11 | G5 |
| IOL6A | I/O | 3 | | True_of_IOL6B | TRUE | | | C9 | | | A10 | 9 | D1 | E1 | B11 | F4 |
| IOL6B | I/O | 3 | | Comp_of_IOL6A | TRUE | | | C8 | | | C11 | 10 | E1 | F1 | A12 | F3 |
| IOL7A | I/O | 3 | | True_of_IOL7B | NONE | | | | | | | | | | A11 | E2 |
| IOL7B | I/O | 3 | | Comp_of_IOL7A | NONE | | | | | | | | | | C11 | E1 |
| IOL8A | I/O | 3 | | True_of_IOL8B | TRUE | | | | | | C9 | | H4 | | D10 | F2 |
| IOL8B | I/O | 3 | | Comp_of_IOL8A | TRUE | | | | | | A9 | | K4 | | E10 | F1 |
| IOL9A/GCLKT_7 | I/O | 3 | GCLKT_7 | True_of_IOL9B | NONE | 26 | | | | 6 | C8 | 11 | F2 | H6 | A9 | H5 |
| IOL9B/GCLKC_7 | I/O | 3 | GCLKC_7 | Comp_of_IOL9A | NONE | | | | | 7 | B8 | 12 | G2 | G5 | C9 | G4 |
| IOR10A/MI/D7 | I/O | 1 | MI/D7 | True_of_IOR10B | NONE | 13 | 34 | | 62 | 68 | N4 | 96 | F14 | H9 | P10 | D16 |
| IOR10B/MO/D6 | I/O | 1 | MO/D6 | Comp_of_IOR10A | NONE | 12 | 33 | | 61 | 67 | P13 | 95 | G14 | H8 | R10 | E16 |
| IOR10C/MCS_N/D5 | I/O | 1 | MCS_N/D5 | True_of_IOR10D | NONE | 11 | 32 | | 60 | 66 | P3 | 94 | E12 | F12 | M9 | F14 |
| IOR10D/MCLK/D4 | I/O | 1 | MCLK/D4 | Comp_of_IOR10C | NONE | 10 | 31 | | 59 | 65 | M4 | 93 | G12 | E12 | L10 | G14 |
| IOR10E/FASTRD_N/D3 | I/O | 1 | FASTRD_N/D3 | True_of_IOR10F | NONE | | | | 57 | 64 | | 92 | G11 | G13 | R9 | F15 |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOR10F/SI/D2 | I/O | 1 | SI/D2 | Comp_of_IOR10E | NONE | | | E2 | | 62 | | 90 | G13 | G12 | T10 | G15 |
| IOR10G/SO/D1 | I/O | 1 | SO/D1 | True_of_IOR10H | NONE | | | E3 | 56 | 61 | | 88 | H14 | F8 | M8 | F16 |
| IOR10H/SSPI_CS_N/D0 | I/O | 1 | SSPI_CS_N/D0 | Comp_of_IOR10G | NONE | | | D2 | 55 | 60 | N12 | 87 | J11 | E9 | N9 | G16 |
| IOR10I/DIN/CLKHOLD_N | I/O | 1 | DIN/CLKHOLD_N | True_of_IOR10J | NONE | | | | 54 | 59 | | 86 | H13 | J13 | T9 | H14 |
| IOR10J/DOUT/WE_N | I/O | 1 | DOUT/WE_N | Comp_of_IOR10I | NONE | | | | 53 | 58 | | 85 | H12 | H13 | P9 | H15 |
| IOR11A/GCLKT_3 | I/O | 1 | GCLKT_3 | True_of_IOR11B | TRUE | 9 | 30 | F1 | 52 | 57 | M7 | 84 | J14 | G9 | T7 | H12 |
| IOR11B/GCLKC_3 | I/O | 1 | GCLKC_3 | Comp_of_IOR11A | TRUE | 8 | 29 | F2 | 51 | 56 | N8 | 83 | K14 | G10 | R8 | H13 |
| IOR12A | I/O | 1 | | True_of_IOR12B | NONE | | | | | | P7 | | | | N8 | H16 |
| IOR12B | I/O | 1 | | Comp_of_IOR12A | NONE | | | | | | N7 | | | | L9 | J15 |
| IOR13A | I/O | 1 | | True_of_IOR13B | TRUE | | | | | | P9 | | E11 | J9 | P8 | J13 |
| IOR13B | I/O | 1 | | Comp_of_IOR13A | TRUE | | | | | | N9 | | F11 | H10 | T8 | J14 |
| IOR14A | I/O | 1 | | True_of_IOR14B | NONE | | | | | | N5 | | | L13 | M6 | J16 |
| IOR14B | I/O | 1 | | Comp_of_IOR14A | NONE | | | | | | M5 | | | K13 | L8 | K16 |
| IOR15A | I/O | 1 | | True_of_IOR15B | TRUE | | | | | | P8 | 82 | J12 | K12 | M7 | K15 |
| IOR15B | I/O | 1 | | Comp_of_IOR15A | TRUE | | | | 50 | | M8 | 81 | H11 | J12 | N7 | L15 |
| IOR16A | I/O | 1 | | True_of_IOR16B | NONE | | | | | | N3 | | | | R7 | K14 |
| IOR16B | I/O | 1 | | Comp_of_IOR16A | NONE | | | | | | P4 | | | | P7 | K13 |
| IOR17A | I/O | 1 | | True_of_IOR17B | TRUE | | 28 | | 49 | | | 80 | K12 | K11 | N6 | L16 |
| IOR17B | I/O | 1 | | Comp_of_IOR17A | TRUE | | 27 | | 48 | | M3 | 79 | K11 | L12 | L7 | M16 |
| IOR18A | I/O | 1 | | True_of_IOR18B | NONE | | | | | | P2 | | | K10 | P6 | M15 |
| IOR18B | I/O | 1 | | Comp_of_IOR18A | NONE | | | | | | N2 | | | J10 | T6 | M14 |
| IOR2A | I/O | 1 | | True_of_IOR2B | TRUE | | | B1 | | | | | | D12 | T15 | C13 |
| IOR2B | I/O | 1 | | Comp_of_IOR2A | TRUE | | | B2 | | | | | | D11 | R14 | C14 |
| IOR3A/RPLL_T_in | I/O | 1 | RPLL_T_in | True_of_IOR3B | NONE | 17 | 35 | | 63 | 73 | | 106 | B14 | E10 | R12 | F11 |
| IOR3B/RPLL_C_in | I/O | 1 | RPLL_C_in | Comp_of_IOR3A | NONE | 16 | | | | 72 | | 104 | C14 | D9 | P13 | F12 |
| IOR4A/RPLL_T_fb | I/O | 1 | RPLL_T_fb | True_of_IOR4B | TRUE | | | C3 | | | | 102 | D14 | B13 | P12 | E13 |
| IOR4B/RPLL_C_fb | I/O | 1 | RPLL_C_fb | Comp_of_IOR4A | TRUE | | | B3 | | | | 101 | E14 | A12 | T13 | D14 |
| IOR5A | I/O | 1 | | True_of_IOR5B | NONE | | | | | | | | | C12 | R11 | C15 |
| IOR5B | I/O | 1 | | Comp_of_IOR5A | NONE | | | | | | | | | C11 | T12 | B16 |
| IOR6A | I/O | 1 | | True_of_IOR6B | TRUE | | | | | | M11 | 100 | D13 | B12 | R13 | E14 |
| IOR6B | I/O | 1 | | Comp_of_IOR6A | TRUE | | | | | | P12 | 99 | E13 | B11 | T14 | F13 |
| IOR7A | I/O | 1 | | True_of_IOR7B | NONE | | | | | | M10 | | | C13 | M10 | G13 |
| IOR7B | I/O | 1 | | Comp_of_IOR7A | NONE | | | | | | P11 | | | D13 | N11 | G12 |
| IOR8A | I/O | 1 | | True_of_IOR8B | TRUE | | | C1 | | | M9 | | | F9 | T11 | D15 |
| IOR8B | I/O | 1 | | Comp_of_IOR8A | TRUE | | | C2 | | | N10 | | | F10 | P11 | E15 |
| IOR9A/GCLKT_2 | I/O | 1 | GCLKT_2 | True_of_IOR9B | NONE | 14 | | | | 70 | N6 | 98 | F13 | F13 | N10 | J12 |
| IOR9B/GCLKC_2 | I/O | 1 | GCLKC_2 | Comp_of_IOR9A | NONE | | | | | 69 | P6 | 97 | F12 | E13 | M11 | K12 |
| IOT12A | I/O | 0 | | True_of_IOT12B | NONE | | | | 79 | | C1 | 134 | A6 | | | |
| IOT12B | I/O | 0 | | Comp_of_IOT12A | NONE | | | | | | C3 | 133 | A7 | | | |
| IOT13A | I/O | 0 | | True_of_IOT13B | NONE | | | | | | | | | A4 | G15 | C7 |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOT13B | I/O | 0 | | Comp_of_IOT13A | NONE | | | | | | | | | A3 | G14 | D7 |
| IOT14A | I/O | 0 | | True_of_IOT14B | NONE | | | B6 | | 93 | B1 | 132 | C6 | B7 | G11 | B6 |
| IOT14B | I/O | 0 | | Comp_of_IOT14A | NONE | | | C6 | | 92 | B2 | 131 | D6 | | H12 | B5 |
| IOT15A | I/O | 0 | | True_of_IOT15B | NONE | | | | | | | | | A5 | G16 | A6 |
| IOT15B | I/O | 0 | | Comp_of_IOT15A | NONE | | | | | | | | | | H15 | B7 |
| IOT16A | I/O | 0 | | True_of_IOT16B | NONE | 22 | 45 | | | 91 | K1 | 130 | C7 | C4 | H13 | E7 |
| IOT16B | I/O | 0 | | Comp_of_IOT16A | NONE | 21 | 44 | | | 90 | K3 | 129 | D7 | C5 | J12 | E8 |
| IOT17A | I/O | 0 | | True_of_IOT17B | NONE | 20 | | | | 89 | | 128 | B7 | B6 | H14 | D8 |
| IOT17B | I/O | 0 | | Comp_of_IOT17A | NONE | | | | | | | | B8 | B5 | H16 | C8 |
| IOT18A | I/O | 0 | | True_of_IOT18B | NONE | | | | | | G3 | | A8 | | J16 | A7 |
| IOT18B | I/O | 0 | | Comp_of_IOT18A | NONE | | | | | | H2 | 126 | A9 | | J14 | B8 |
| IOT20A | I/O | 0 | | True_of_IOT20B | NONE | | | | | 86 | | 124 | | | | |
| IOT20B | I/O | 0 | | Comp_of_IOT20A | NONE | | | | | 85 | | | | | | |
| IOT21A | I/O | 0 | | True_of_IOT21B | NONE | | | | | | M1 | | | | J15 | A8 |
| IOT21B | I/O | 0 | | Comp_of_IOT21A | NONE | | | | | | M2 | | | | K16 | A9 |
| IOT22A | I/O | 0 | | True_of_IOT22B | NONE | | | | | | | 123 | C8 | | H11 | D9 |
| IOT22B | I/O | 0 | | Comp_of_IOT22A | NONE | | | | | | | 122 | D8 | | J13 | C9 |
| IOT23A | I/O | 0 | | True_of_IOT23B | NONE | | | | | | C7 | | | A7 | K14 | B9 |
| IOT23B | I/O | 0 | | Comp_of_IOT23A | NONE | | | | | | L3 | | | A6 | K15 | B10 |
| IOT24A | I/O | 0 | | True_of_IOT24B | NONE | | 43 | B5 | | 84 | | 121 | B9 | | J11 | A10 |
| IOT24B | I/O | 0 | | Comp_of_IOT24A | NONE | | 42 | C5 | | 83 | | 120 | B10 | | L12 | A11 |
| IOT25A | I/O | 0 | | True_of_IOT25B | NONE | | | | | | J3 | | | D8 | L16 | C10 |
| IOT25B | I/O | 0 | | Comp_of_IOT25A | NONE | | | | | | K2 | | | E8 | L14 | D10 |
| IOT26A | I/O | 0 | | True_of_IOT26B | NONE | | | | | | | 119 | D9 | | K13 | B11 |
| IOT26B | I/O | 0 | | Comp_of_IOT26A | NONE | | | | | | | 118 | C9 | | K12 | C11 |
| IOT27A | I/O | 0 | | True_of_IOT27B | NONE | | | | | | J1 | | | E7 | | |
| IOT27B | I/O | 0 | | Comp_of_IOT27A | NONE | | | | | | J2 | | | D7 | | |
| IOT2A | I/O | 0 | | True_of_IOT2B | NONE | | | | | | | | | | L15 | D4 |
| IOT2B/MODE0 | I/O | 0 | MODE0 | Comp_of_IOT2A | NONE | GND[1] | GND[1] | A7 | 88 | 100 | GND[1] | 144 | B1 | GND[1] | M16 | E5 |
| IOT30A | I/O | 0 | | True_of_IOT30B | NONE | | 41 | B4 | | 82 | | 117 | A11 | | K11 | A12 |
| IOT30B | I/O | 0 | | Comp_of_IOT30A | NONE | | 40 | C4 | 77 | 81 | | 116 | A10 | | L13 | B12 |
| IOT31A | I/O | 0 | | True_of_IOT31B | NONE | | | | | | H1 | | | A10 | | E9 |
| IOT31B | I/O | 0 | | Comp_of_IOT31A | NONE | | | | 76 | | H3 | | | A11 | | E10 |
| IOT32A | I/O | 0 | | True_of_IOT32B | NONE | | | | | | | | | | M14 | A13 |
| IOT32B | I/O | 0 | | Comp_of_IOT32A | NONE | | | | 75 | | | | | | M15 | B13 |
| IOT33A | I/O | 0 | | True_of_IOT33B | NONE | | | | | | F1 | 115 | B11 | B10 | D14 | C12 |
| IOT33B | I/O | 0 | | Comp_of_IOT33A | NONE | | | | 74 | | F3 | 114 | B12 | B9 | E15 | D11 |
| IOT34A | I/O | 0 | | True_of_IOT34B | NONE | | | | | | | | | | | |
| IOT34B | I/O | 0 | | Comp_of_IOT34A | NONE | | | | | | | | | | | |
| IOT35A | I/O | 0 | | True_of_IOT35B | NONE | | 39 | A3 | 73 | 80 | E3 | 113 | D10 | A8 | N15 | B14 |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOT35B | I/O | 0 | | Comp_of_IOT35A | NONE | | 38 | A4 | 72 | 79 | F2 | 112 | C10 | A9 | P16 | A15 |
| IOT36A | I/O | 0 | | True_of_IOT36B | NONE | | | | 71 | | | | | | N16 | E12 |
| IOT36B | I/O | 0 | | Comp_of_IOT36A | NONE | | | | 70 | | | | | | N14 | E11 |
| IOT37A | I/O | 0 | | True_of_IOT37B | NONE | | | | 69 | 78 | E1 | 111 | A12 | C10 | P15 | D13 |
| IOT37B | I/O | 0 | | Comp_of_IOT37A | NONE | | | | 68 | 77 | E2 | 110 | A13 | C9 | R16 | D12 |
| IOT3A/MODE2 | I/O | 0 | MODE2 | True_of_IOT3B | NONE | GND[1] | GND[1] | GND[1] | GND[1] | GND[1] | GND[1] | GND[1] | A2 | GND[1] | C15 | A2 |
| IOT3B/MODE1 | I/O | 0 | MODE1 | Comp_of_IOT3A | NONE | 23 | 48 | GND[1] | 87 | GND[1] | GND[1] | 143 | A3 | GND[1] | B16 | B1 |
| IOT4A | I/O | 0 | | True_of_IOT4B | NONE | | | A6 | 86 | 99 | | 142 | B3 | | D16 | E6 |
| IOT4B | I/O | 0 | | Comp_of_IOT4A | NONE | | | | 85 | 98 | | 141 | B4 | | E14 | F6 |
| IOT5A | I/O | 0 | | True_of_IOT5B | NONE | | | | 84 | | | | | B3 | C16 | C4 |
| IOT5B | I/O | 0 | | Comp_of_IOT5A | NONE | | | | 83 | | | | | B4 | D15 | D5 |
| IOT6A | I/O | 0 | | True_of_IOT6B | NONE | | | | 82 | 97 | | 140 | A4 | | E16 | B3 |
| IOT6B | I/O | 0 | | Comp_of_IOT6A | NONE | | | | 81 | 96 | | 139 | A5 | | F15 | C3 |
| IOT7A | I/O | 0 | | True_of_IOT7B | NONE | | | | | | | 138 | B5 | E6 | F13 | B4 |
| IOT7B | I/O | 0 | | Comp_of_IOT7A | NONE | | | | | | | 137 | B6 | D6 | G12 | C5 |
| IOT8A | I/O | 0 | | True_of_IOT8B | NONE | | | | | | C2 | | | | F14 | D6 |
| IOT8B | I/O | 0 | | Comp_of_IOT8A | NONE | | | | | | D1 | | | | F16 | C6 |
| IOT9A | I/O | 0 | | True_of_IOT9B | NONE | | 47 | | 80 | 95 | | 136 | C5 | A2 | F12 | A4 |
| IOT9B | I/O | 0 | | Comp_of_IOT9A | NONE | | 46 | | | 94 | | 135 | D5 | B2 | G13 | A5 |
| VCC | Power | N/A | | | | 2 | 12 | H8 | 22 | 25 | N1 | 36 | | H7 | | |
| VCC | Power | N/A | | | | 18 | 37 | A2 | 66 | 75 | P14 | 108 | | G8 | | |
| VCC | Power | N/A | | | | | | A8 | 1 | 1 | A14 | 1 | | F7 | | |
| VCC | Power | N/A | | | | | | | 45 | 51 | A1 | 73 | | G6 | | |
| VCC | Power | N/A | | | | | | | | | | | A1 | | A1 | F10 |
| VCC | Power | N/A | | | | | | | | | | | A14 | | A16 | G11 |
| VCC | Power | N/A | | | | | | | | | | | P1 | | G7 | H8 |
| VCC | Power | N/A | | | | | | | | | | | P14 | | G10 | H10 |
| VCC | Power | N/A | | | | | | | | | | | | | K10 | J9 |
| VCC | Power | N/A | | | | | | | | | | | | | K7 | J7 |
| VCC | Power | N/A | | | | | | | | | | | | | T1 | K6 |
| VCC | Power | N/A | | | | | | | | | | | | | T16 | L7 |
| VCCIO0 | Power | N/A | | | | 19 | | | | 88 | D3 | 127 | | C6 | | |
| VCCIO0 | Power | N/A | | | | | | A5 | 67 | 76 | G1 | 109 | | C8 | | |
| VCCIO0 | Power | N/A | | | | | | | | | L1 | | C11 | C7 | J10 | A14 |
| VCCIO0 | Power | N/A | | | | | | | | | | | C4 | | E13 | A3 |
| VCCIO0 | Power | N/A | | | | | | | | | | | | | H10 | F9 |
| VCCIO0 | Power | N/A | | | | | | | | | | | | | M13 | F8 |
| VCCIO0/VCCIO3 | Power | N/A | | | | | 1 | | | | | | | | | |
| VCCIO1 | Power | N/A | | | | 7 | | D1 | | 54 | P1 | 77 | | H11 | | |
| VCCIO1 | Power | N/A | | | | | | | 58 | 63 | N11 | 91 | | J11 | | |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VCCIO1 | Power | N/A | | | | | | | | | M6 | | D12 | G11 | K8 | C16 |
| VCCIO1 | Power | N/A | | | | | | | | | | | L12 | F11 | N5 | J11 |
| VCCIO1 | Power | N/A | | | | | | | | | | | | | N12 | P16 |
| VCCIO1/VCCIO2 | Power | N/A | | | | | 25 | | | | | | | | | |
| VCCIO2 | Power | N/A | | | | 6 | | | | | | | | L8 | | |
| VCCIO2 | Power | N/A | | | | | | H5 | 23 | 26 | | 37 | | L6 | | |
| VCCIO2 | Power | N/A | | | | | | | 44 | | | | | L7 | | |
| VCCIO2 | Power | N/A | | | | | | | | 38 | | 55 | | | | |
| VCCIO2 | Power | N/A | | | | | | | | | L12 | | M11 | | H7 | L9 |
| VCCIO2 | Power | N/A | | | | | | | | | H14 | | M4 | | E4 | L8 |
| VCCIO2 | Power | N/A | | | | | | | | | D14 | | | | J7 | T14 |
| VCCIO2 | Power | N/A | | | | | | | | | | | | | M4 | T3 |
| VCCIO3 | Power | N/A | | | | 31 | | | 12 | | | | | G3 | | |
| VCCIO3 | Power | N/A | | | | | | E9 | | 4 | | 5 | | K3 | | |
| VCCIO3 | Power | N/A | | | | | | | | 13 | | 19 | | F2 | | |
| VCCIO3 | Power | N/A | | | | | | | | | | | D3 | J3 | D12 | C1 |
| VCCIO3 | Power | N/A | | | | | | | | | | | L3 | | D5 | H6 |
| VCCIO3 | Power | N/A | | | | | | | | | | | | | G9 | P1 |
| VCCIO3/VCCX | Power | N/A | | | | | | | | | B10 | | | | | |
| VCCIO3/VCCX | Power | N/A | | | | | | | | | A8 | | | | | |
| VCCIO3/VCCX | Power | N/A | | | | | | | | | C5 | | | | | |
| VCCX | Power | N/A | | | | 15 | 36 | | 64 | 71 | | 103 | | K4 | | |
| VCCX | Power | N/A | | | | | | H2 | | 21 | | 31 | | D10 | | |
| VCCX | Power | N/A | | | | | | | 78 | | | | | K9 | | |
| VCCX | Power | N/A | | | | | | | | | | | C13 | D3 | | J6 |
| VCCX | Power | N/A | | | | | | | | | | | C2 | D4 | | H11 |
| VCCX | Power | N/A | | | | | | | | | | | M13 | | K9 | |
| VCCX | Power | N/A | | | | | | | | | | | M2 | | G8 | |
| VSS | Ground | N/A | | | | 3 | | H9 | 21 | 24 | | 35 | | | | |
| VSS | Ground | N/A | | | | | 2 | A9 | 2 | 2 | | 2 | | | | |
| VSS | Ground | N/A | | | | | 26 | H1 | 46 | 52 | | 74 | | | | |
| VSS | Ground | N/A | | | | | | A1 | 65 | 74 | | 107 | | | | |
| VSS | Ground | N/A | | | | | | D9 | | | | | | | | |
| VSS | Ground | N/A | | | | | | E1 | | | | | | | | |
| VSS | Ground | N/A | | | | | | | 24 | | | | | | | |
| VSS | Ground | N/A | | | | | | | 43 | | | | | | | |
| VSS | Ground | N/A | | | | | | | | 37 | | 53 | | | | |
| VSS | Ground | N/A | | | | | | | | 87 | | 125 | | | | |
| VSS | Ground | N/A | | | | | | | | | | 17 | | | | |
| VSS | Ground | N/A | | | | | | | | | | 33 | | | | |

**Note!**
[1] The pin is internally grounded.

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VSS | Ground | N/A | | | | | | | | | | 89 | | | | |
| VSS | Ground | N/A | | | | | | | | | | 105 | | | | |
| VSS | Ground | N/A | | | | | | | | | D2 | | B13 | D2 | B15 | G6 |
| VSS | Ground | N/A | | | | | | | | | G2 | | B2 | E2 | B2 | F7 |
| VSS | Ground | N/A | | | | | | | | | L2 | | C12 | N13 | C14 | H9 |
| VSS | Ground | N/A | | | | | | | | | P5 | | C3 | N1 | C3 | H7 |
| VSS | Ground | N/A | | | | | | | | | P10 | | D11 | M6 | D13 | J10 |
| VSS | Ground | N/A | | | | | | | | | L13 | | D4 | L9 | D4 | J8 |
| VSS | Ground | N/A | | | | | | | | | A5 | | L11 | J4 | E12 | L10 |
| VSS | Ground | N/A | | | | | | | | | B11 | | L4 | H12 | E5 | K11 |
| VSS | Ground | N/A | | | | | | | | | D13 | | M12 | G7 | F11 | A16 |
| VSS | Ground | N/A | | | | | | | | | H13 | | M3 | F3 | F6 | A1 |
| VSS | Ground | N/A | | | | | | | | | | | N13 | E11 | H9 | B15 |
| VSS | Ground | N/A | | | | | | | | | | | N2 | D5 | H8 | G7 |
| VSS | Ground | N/A | | | | | | | | | | | | C3 | J8 | B2 |
| VSS | Ground | N/A | | | | | | | | | | | | B8 | J9 | K10 |
| VSS | Ground | N/A | | | | | | | | | | | | A13 | L11 | K8 |
| VSS | Ground | N/A | | | | | | | | | | | | A1 | L6 | G10 |
| VSS | Ground | N/A | | | | | | | | | | | | | M12 | R15 |
| VSS | Ground | N/A | | | | | | | | | | | | | M5 | |
| VSS | Ground | N/A | | | | | | | | | | | | | N13 | T16 |
| VSS | Ground | N/A | | | | | | | | | | | | | N4 | T1 |
| VSS | Ground | N/A | | | | | | | | | | | | | P14 | G9 |
| VSS | Ground | N/A | | | | | | | | | | | | | P3 | G8 |
| VSS | Ground | N/A | | | | | | | | | | | | | R15 | R2 |
| VSS | Ground | N/A | | | | | | | | | | | | | R2 | K9 |
| VSS | Ground | N/A | | | | | | | | | | | | | | K7 |

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BANK3 True LVDS Pair** | | | | | | | | | | | | | | | | |
| IOL11A/GCLKT_6 | I/O | 3 | GCLKT_6 | True_of_IOL11B | TRUE | | 10 | F9 | | 17 | A7 | 25 | J2 | G4 | C8 | J5 |
| IOL11B/GCLKC_6 | I/O | 3 | GCLKC_6 | Comp_of_IOL11A | TRUE | | 11 | F8 | | 18 | B7 | 26 | J3 | F4 | A8 | J4 |
| IOL13A | I/O | 3 | | True_of_IOL13B | TRUE | | | G9 | | 19 | B5 | 27 | J1 | J2 | F8 | H1 |
| IOL13B | I/O | 3 | | Comp_of_IOL13A | TRUE | | | G8 | | 20 | C6 | 28 | K1 | J1 | D9 | J1 |
| IOL15A | I/O | 3 | | True_of_IOL15B | TRUE | | | | 13 | | A3 | 29 | K2 | M2 | B7 | K1 |
| IOL15B | I/O | 3 | | Comp_of_IOL15A | TRUE | | | | 14 | | C4 | 30 | L2 | M1 | C7 | K2 |
| IOL17A | I/O | 3 | | True_of_IOL17B | TRUE | | | | 15 | | A2 | | | L3 | C4 | K3 |
| IOL17B | I/O | 3 | | Comp_of_IOL17A | TRUE | | | | 16 | | B3 | | | M3 | B5 | K4 |
| IOL2A | I/O | 3 | | True_of_IOL2B | TRUE | | | | | | C12 | 3 | C1 | C2 | B14 | C2 |
| IOL2B | I/O | 3 | | Comp_of_IOL2A | TRUE | | | | | | A12 | | D2 | D1 | A15 | D3 |
| IOL4A/LPLL_T_fb | I/O | 3 | LPLL_T_fb | True_of_IOL4B | TRUE | | | B9 | | | | 7 | E4 | E4 | B13 | D2 |
| IOL4B/LPLL_C_fb | I/O | 3 | LPLL_C_fb | Comp_of_IOL4A | TRUE | | | B8 | | | | 8 | F4 | E3 | A14 | D1 |
| IOL6A | I/O | 3 | | True_of_IOL6B | TRUE | | | C9 | | | A10 | 9 | D1 | E1 | B11 | F4 |
| IOL6B | I/O | 3 | | Comp_of_IOL6A | TRUE | | | C8 | | | C11 | 10 | E1 | F1 | A12 | F3 |
| IOL8A | I/O | 3 | | True_of_IOL8B | TRUE | | | | | | C9 | | H4 | | D10 | F2 |
| IOL8B | I/O | 3 | | Comp_of_IOL8A | TRUE | | | | | | A9 | | K4 | | E10 | F1 |
| **BANK2 True LVDS Pair** | | | | | | | | | | | | | | | | |
| IOB12A | I/O | 2 | | True_of_IOB12B | TRUE | | 15 | D6 | 31 | 33 | J12 | 48 | L6 | M7 | F4 | M7 |
| IOB12B | I/O | 2 | | Comp_of_IOB12A | TRUE | | 16 | E6 | 32 | 34 | J14 | 49 | M6 | N6 | G6 | M8 |
| IOB14A | I/O | 2 | | True_of_IOB14B | TRUE | | | H6 | | 35 | | 50 | L7 | N8 | G5 | T4 |
| IOB14B | I/O | 2 | | Comp_of_IOB14A | TRUE | | | G6 | | 36 | | 51 | M7 | N7 | G4 | T5 |
| IOB16A | I/O | 2 | | True_of_IOB16B | TRUE | | | | | | G12 | 52 | N6 | K6 | F5 | T6 |
| IOB16B | I/O | 2 | | Comp_of_IOB16A | TRUE | | | | | | G14 | 54 | P6 | J6 | H6 | T7 |
| IOB18A | I/O | 2 | | True_of_IOB18B | TRUE | | 17 | | | | | | | K7 | H4 | N8 |
| IOB18B | I/O | 2 | | Comp_of_IOB18A | TRUE | | 18 | | | | | | | J7 | J6 | P8 |
| IOB20A/GCLKT_4 | I/O | 2 | GCLKT_4 | True_of_IOB20B | TRUE | 4 | 19 | G5 | 35 | 41 | | 58 | L8 | M12 | L2 | T10 |
| IOB20B/GCLKC_4 | I/O | 2 | GCLKC_4 | Comp_of_IOB20A | TRUE | 5 | 20 | F5 | 36 | 42 | | 59 | M8 | M13 | M1 | R9 |
| IOB22A | I/O | 2 | | True_of_IOB22B | TRUE | | | D4 | | | F13 | 62 | N8 | | J2 | T11 |
| IOB22B | I/O | 2 | | Comp_of_IOB22A | TRUE | | | D5 | | | F14 | 63 | P8 | | K1 | R10 |
| IOB24A | I/O | 2 | | True_of_IOB24B | TRUE | | | E4 | | 43 | E13 | 64 | N9 | | K3 | M9 |
| IOB24B | I/O | 2 | | Comp_of_IOB24A | TRUE | | | E5 | | 44 | F12 | 65 | P9 | | K2 | M10 |
| IOB26A | I/O | 2 | | True_of_IOB26B | TRUE | | 21 | H4 | | 45 | E12 | 66 | L10 | N9 | L1 | N10 |
| IOB26B | I/O | 2 | | Comp_of_IOB26A | TRUE | | 22 | G4 | | 46 | E14 | 67 | M10 | N10 | L3 | P11 |
| IOB2A | I/O | 2 | | True_of_IOB2B | TRUE | | | | 17 | | N13 | | | L4 | A4 | L3 |
| IOB2B | I/O | 2 | | Comp_of_IOB2A | TRUE | | | | 18 | | N14 | | | L5 | C5 | M3 |
| IOB30A | I/O | 2 | | True_of_IOB30B | TRUE | | | F4 | 41 | 47 | C14 | 70 | P11 | | M3 | N12 |

| Pin Name | Function | BANK | Configuration Function | Differential Pair | LVDS | QN32 | QN48 | CS72 | QN88 | LQ100 | MG132X | LQ144 | MG160 | UG169 | PG256 | PG256M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IOB30B | I/O | 2 | | Comp_of_IOB30A | TRUE | | | F3 | 42 | 48 | D12 | 71 | N11 | | N1 | P13 |
| IOB32A | I/O | 2 | | True_of_IOB32B | TRUE | | 23 | H3 | | 49 | B14 | | P12 | L11 | R1 | P15 |
| IOB32B | I/O | 2 | | Comp_of_IOB32A | TRUE | | 24 | G3 | | 50 | C13 | | N12 | M11 | P2 | R16 |
| IOB34A | I/O | 2 | | True_of_IOB34B | TRUE | | | | | 55 | | 75 | M14 | K8 | T2 | M13 |
| IOB34B | I/O | 2 | | Comp_of_IOB34A | TRUE | | | | | 53 | | 72 | N14 | J8 | R3 | L12 |
| IOB36A | I/O | 2 | | True_of_IOB36B | TRUE | | | G1 | | | | 78 | J13 | L10 | T3 | N16 |
| IOB36B | I/O | 2 | | Comp_of_IOB36A | TRUE | | | G2 | | | | 76 | L13 | M10 | R4 | N15 |
| IOB4A | I/O | 2 | | True_of_IOB4B | TRUE | 32 | | | 19 | | M12 | | | M5 | A3 | N1 |
| IOB4B | I/O | 2 | | Comp_of_IOB4A | TRUE | 1 | | | 20 | | M14 | 32 | | M4 | B4 | N2 |
| IOB6A | I/O | 2 | | True_of_IOB6B | TRUE | | 13 | H7 | 25 | 27 | L14 | 38 | N1 | | B1 | P2 |
| IOB6B | I/O | 2 | | Comp_of_IOB6A | TRUE | | 14 | G7 | 26 | 28 | M13 | 39 | P2 | | C2 | N3 |
| IOB8A | I/O | 2 | | True_of_IOB8B | TRUE | | | F7 | 27 | 29 | K13 | 42 | L5 | N5 | E2 | P4 |
| IOB8B | I/O | 2 | | Comp_of_IOB8A | TRUE | | | F6 | 28 | 30 | K14 | 43 | M5 | N4 | E3 | N5 |
| **BANK1 True LVDS Pair** | | | | | | | | | | | | | | | | |
| IOR11A/GCLKT_3 | I/O | 1 | GCLKT_3 | True_of_IOR11B | TRUE | 9 | 30 | F1 | 52 | 57 | M7 | 84 | J14 | G9 | T7 | H12 |
| IOR11B/GCLKC_3 | I/O | 1 | GCLKC_3 | Comp_of_IOR11A | TRUE | 8 | 29 | F2 | 51 | 56 | N8 | 83 | K14 | G10 | R8 | H13 |
| IOR13A | I/O | 1 | | True_of_IOR13B | TRUE | | | | | | P9 | | E11 | J9 | P8 | J13 |
| IOR13B | I/O | 1 | | Comp_of_IOR13A | TRUE | | | | | | N9 | | F11 | H10 | T8 | J14 |
| IOR15A | I/O | 1 | | True_of_IOR15B | TRUE | | | | | | P8 | 82 | J12 | K12 | M7 | K15 |
| IOR15B | I/O | 1 | | Comp_of_IOR15A | TRUE | | | | | | M8 | 81 | H11 | J12 | N7 | L15 |
| IOR17A | I/O | 1 | | True_of_IOR17B | TRUE | | 28 | | 49 | | | 80 | K12 | K11 | N6 | L16 |
| IOR17B | I/O | 1 | | Comp_of_IOR17A | TRUE | | 27 | | 48 | | M3 | 79 | K11 | L12 | L7 | M16 |
| IOR2A | I/O | 1 | | True_of_IOR2B | TRUE | | | B1 | | | | | | D12 | T15 | C13 |
| IOR2B | I/O | 1 | | Comp_of_IOR2A | TRUE | | | B2 | | | | | | D11 | R14 | C14 |
| IOR4A/RPLL_T_fb | I/O | 1 | RPLL_T_fb | True_of_IOR4B | TRUE | | | C3 | | | | 102 | D14 | B13 | P12 | E13 |
| IOR4B/RPLL_C_fb | I/O | 1 | RPLL_C_fb | Comp_of_IOR4A | TRUE | | | B3 | | | | 101 | E14 | A12 | T13 | D14 |
| IOR6A | I/O | 1 | | True_of_IOR6B | TRUE | | | | | | M11 | 100 | D13 | B12 | R13 | E14 |
| IOR6B | I/O | 1 | | Comp_of_IOR6A | TRUE | | | | | | P12 | 99 | E13 | B11 | T14 | F13 |
| IOR8A | I/O | 1 | | True_of_IOR8B | TRUE | | | C1 | | | M9 | | | F9 | T11 | D15 |
| IOR8B | I/O | 1 | | Comp_of_IOR8A | TRUE | | | C2 | | | N10 | | | F10 | P11 | E15 |

**Note!**
VCCX should be greater than or equal to VCCIO.

| Recommended Operating Conditions of QN48 Package in GW1N-4 | | | | |
|---|---|---|---|---|
| **Name** | **Description** | | **Min.** | **Max.** |
| VCC | LV: Core voltage | | 1.14V | 1.26V |
| | UV: Core voltage | | 1.71V | 3.6V |
| VCCIO0, VCCIO3 | VCCIO0 and VCCIO3 are internally short-circuited. | LV: I/O Bank voltage | 1.14V | 3.6V |
| | | UV: I/O Bank voltage | 1.14V | 3.6V |
| VCCIO1, VCCIO2 | VCCIO0 and VCCIO2 are internally short-circuited. | LV: I/O Bank voltage | 1.14V | 3.6V |
| | | UV: I/O Bank voltage | 1.14V | 3.6V |
| VCCX | Auxiliary voltage | | 2.375V | 3.6V |

**Note!**
It is highly recommended that the epad connect to GND, but not a requirement.

| Recommended Operating Conditions of MG132X Package in GW1N-4 | | | |
|---|---|---|---|
| **Name** | **Description** | **Min.** | **Max.** |
| VCC | LV: Core voltage | 1.14V | 1.26V |
| | UV: Core voltage | 1.71V | 3.6V |
| VCCIO0, VCCIO1, VCCIO2 | LV: I/O Bank voltage | 1.14V | 3.6V |
| | UV: I/O Bank voltage | 1.14V | 3.6V |
| VCCX/VCCIO3 | VCCX and VCCIO3 are internally short-circuited. | 2.375V | 3.6V |

| Recommended Operating Conditions of QN32/QN88 Packages in GW1N-4 | | | |
|---|---|---|---|
| **Name** | **Description** | **Min.** | **Max.** |
| VCC | LV: Core voltage | 1.14V | 1.26V |
| | UV: Core voltage | 1.71V | 3.6V |
| VCCIO0, VCCIO1<br>VCCIO2, VCCIO3 | LV: I/O Bank voltage | 1.14V | 3.6V |
| | UV: I/O Bank voltage | 1.14V | 3.6V |
| VCCX | Auxiliary voltage | 2.375V | 3.6V |

**Note!**
It is highly recommended that the epad connect to GND, but not a requirement.

| Recommended Operating Conditions of CS72/LQ100/LQ144/MG160/UG169/PG256/PG256M Packages in GW1N-4 | | | |
|---|---|---|---|
| **Name** | **Description** | **Min.** | **Max.** |
| VCC | LV: Core voltage | 1.14V | 1.26V |
| | UV: Core voltage | 1.71V | 3.6V |
| VCCIO0, VCCIO1<br>VCCIO2, VCCIO3 | LV: I/O Bank voltage | 1.14V | 3.6V |
| | UV: I/O Bank voltage | 1.14V | 3.6V |
| VCCX | Auxiliary voltage | 2.375V | 3.6V |