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Understanding <u>Embedded - FPGAs (Field</u> <u>Programmable Gate Array)</u>

Embedded - FPGAs, or Field Programmable Gate Arrays, are advanced integrated circuits that offer unparalleled flexibility and performance for digital systems. Unlike traditional fixed-function logic devices, FPGAs can be programmed and reprogrammed to execute a wide array of logical operations, enabling customized functionality tailored to specific applications. This reprogrammability allows developers to iterate designs quickly and implement complex functions without the need for custom hardware.

Applications of Embedded - FPGAs

The versatility of Embedded - FPGAs makes them indispensable in numerous fields. In telecommunications.

Details

Product Status	Active
Number of LABs/CLBs	
Number of Logic Elements/Cells	·
Total RAM Bits	147456
Number of I/O	300
Number of Gates	100000
Voltage - Supply	1.425V ~ 1.575V
Mounting Type	Surface Mount
Operating Temperature	0°C ~ 85°C (TJ)
Package / Case	484-BGA
Supplier Device Package	484-FPBGA (23x23)
Purchase URL	https://www.e-xfl.com/product-detail/microchip-technology/m7a3p1000-fgg484

Email: info@E-XFL.COM

Address: Room A, 16/F, Full Win Commercial Centre, 573 Nathan Road, Mongkok, Hong Kong



I/Os with Advanced I/O Standards

The ProASIC3 family of FPGAs features a flexible I/O structure, supporting a range of voltages (1.5 V, 1.8 V, 2.5 V, and 3.3 V). ProASIC3 FPGAs support many different I/O standards—single-ended and differential.

The I/Os are organized into banks, with two or four banks per device. The configuration of these banks determines the I/O standards supported (Table 1-1).

		I/O Standards Supported					
I/O Bank Type	Device and Bank Location	LVTTL/ LVCMOS	PCI/PCI-X	LVPECL, LVDS, B-LVDS, M-LVDS			
Advanced	East and west Banks of A3P250 and larger devices	\checkmark	\checkmark	\checkmark			
Standard Plus	North and south banks of A3P250 and larger devices All banks of A3P060 and A3P125	\checkmark	\checkmark	Not supported			
Standard	All banks of A3P015 and A3P030	\checkmark	Not supported	Not supported			

Each I/O module contains several input, output, and enable registers. These registers allow the implementation of the following:

- Single-Data-Rate applications
- Double-Data-Rate applications—DDR LVDS, B-LVDS, and M-LVDS I/Os for point-to-point communications

ProASIC3 banks for the A3P250 device and above support LVPECL, LVDS, B-LVDS and M-LVDS. B-LVDS and M-LVDS can support up to 20 loads.

Hot-swap (also called hot-plug, or hot-insertion) is the operation of hot-insertion or hot-removal of a card in a poweredup system.

Cold-sparing (also called cold-swap) refers to the ability of a device to leave system data undisturbed when the system is powered up, while the component itself is powered down, or when power supplies are floating.

Wide Range I/O Support

ProASIC3 devices support JEDEC-defined wide range I/O operation. ProASIC3 supports the JESD8-B specification, covering both 3 V and 3.3 V supplies, for an effective operating range of 2.7 V to 3.6 V.

Wider I/O range means designers can eliminate power supplies or power conditioning components from the board or move to less costly components with greater tolerances. Wide range eases I/O bank management and provides enhanced protection from system voltage spikes, while providing the flexibility to easily run custom voltage applications.

Specifying I/O States During Programming

You can modify the I/O states during programming in FlashPro. In FlashPro, this feature is supported for PDB files generated from Designer v8.5 or greater. See the *FlashPro User's Guide* for more information.

- Note: PDB files generated from Designer v8.1 to Designer v8.4 (including all service packs) have limited display of Pin Numbers only.
 - 1. Load a PDB from the FlashPro GUI. You must have a PDB loaded to modify the I/O states during programming.
 - 2. From the FlashPro GUI, click PDB Configuration. A FlashPoint Programming File Generator window appears.
 - 3. Click the Specify I/O States During Programming button to display the Specify I/O States During Programming dialog box.
 - 4. Sort the pins as desired by clicking any of the column headers to sort the entries by that header. Select the I/Os you wish to modify (Figure 1-4 on page 1-8).
 - 5. Set the I/O Output State. You can set Basic I/O settings if you want to use the default I/O settings for your pins, or use Custom I/O settings to customize the settings for each pin. Basic I/O state settings:
 - 1 I/O is set to drive out logic High



I/O Power-Up and Supply Voltage Thresholds for Power-On Reset (Commercial and Industrial)

Sophisticated power-up management circuitry is designed into every ProASIC[®]3 device. These circuits ensure easy transition from the powered-off state to the powered-up state of the device. The many different supplies can power up in any sequence with minimized current spikes or surges.

In addition, the I/O will be in a known state through the power-up sequence. The basic principle is shown in Figure 2-2 on page 2-5.

There are five regions to consider during power-up.

ProASIC3 I/Os are activated only if ALL of the following three conditions are met:

- 1. VCC and VCCI are above the minimum specified trip points (Figure 2-2 on page 2-5).
- 2. VCCI > VCC 0.75 V (typical)
- 3. Chip is in the operating mode.

VCCI Trip Point:

```
Ramping up: 0.6 V < trip_point_up < 1.2 V
Ramping down: 0.5 V < trip_point_down < 1.1 V
```

VCC Trip Point:

```
Ramping up: 0.6 V < trip_point_up < 1.1 V
Ramping down: 0.5 V < trip_point_down < 1 V
```

VCC and VCCI ramp-up trip points are about 100 mV higher than ramp-down trip points. This specifically built-in hysteresis prevents undesirable power-up oscillations and current surges. Note the following:

- During programming, I/Os become tristated and weakly pulled up to VCCI.
- JTAG supply, PLL power supplies, and charge pump VPUMP supply have no influence on I/O behavior.

PLL Behavior at Brownout Condition

Microsemi recommends using monotonic power supplies or voltage regulators to ensure proper power-up behavior. Power ramp-up should be monotonic at least until VCC and VCCPLLX exceed brownout activation levels. The VCC activation level is specified as 1.1 V worst-case (see Figure 2-2 on page 2-5 for more details).

When PLL power supply voltage and/or VCC levels drop below the VCC brownout levels (0.75 V \pm 0.25 V), the PLL output lock signal goes low and/or the output clock is lost. Refer to the "Power-Up/Down Behavior of Low Power Flash Devices" chapter of the *ProASIC3 FPGA Fabric User's Guide* for information on clock and lock recovery.

Internal Power-Up Activation Sequence

- 1. Core
- 2. Input buffers

Output buffers, after 200 ns delay from input buffer activation.

Thermal Characteristics

Introduction

The temperature variable in the Microsemi Designer software refers to the junction temperature, not the ambient temperature. This is an important distinction because dynamic and static power consumption cause the chip junction to be higher than the ambient temperature.

EQ can be used to calculate junction temperature.

 T_J = Junction Temperature = $\Delta T + T_A$

where:

T_A = Ambient Temperature

 ΔT = Temperature gradient between junction (silicon) and ambient ΔT = θ_{ia} * P

 θ_{ia} = Junction-to-ambient of the package. θ_{ia} numbers are located in Table 2-5 on page 2-6.

P = Power dissipation



	Definition		Devic	e Spe	cific S	static F	Power	(mW)	
Parameter		A3P1000	A3P600	A3P400	A3P250	A3P125	A3P060	A3P030	A3P015
PDC1	Array static power in Active mode	See Table 2-7 on page 2-7.							
PDC2	I/O input pin static power (standard-dependent)		See Table 2-8 on page 2-7 through Table 2-10 on page 2-8.						
PDC3	I/O output pin static power (standard-dependent)	See Table 2-11 on page 2-9 through Table 2-13 on page 2-10.							
PDC4	Static PLL contribution	2.55 mW							
PDC5	Bank quiescent power (VCCI-dependent)	See Table 2-7 on page 2-7.							

Table 2-15 • Different Components Contributing to the Static Power Consumption in ProASIC3 Devices

Note: *For a different output load, drive strength, or slew rate, Microsemi recommends using the Microsemi Power spreadsheet calculator or SmartPower tool in Libero SoC software.

Power Calculation Methodology

This section describes a simplified method to estimate power consumption of an application. For more accurate and detailed power estimations, use the SmartPower tool in Libero SoC software.

The power calculation methodology described below uses the following variables:

- The number of PLLs as well as the number and the frequency of each output clock generated
- · The number of combinatorial and sequential cells used in the design
- · The internal clock frequencies
- The number and the standard of I/O pins used in the design
- · The number of RAM blocks used in the design
- Toggle rates of I/O pins as well as VersaTiles—guidelines are provided in Table 2-16 on page 2-14.
- Enable rates of output buffers—guidelines are provided for typical applications in Table 2-17 on page 2-14.
- Read rate and write rate to the memory—guidelines are provided for typical applications in Table 2-17 on page 2-14. The calculation should be repeated for each clock domain defined in the design.

Methodology

Total Power Consumption—PTOTAL

 $P_{TOTAL} = P_{STAT} + P_{DYN}$

P_{STAT} is the total static power consumption.

P_{DYN} is the total dynamic power consumption.

Total Static Power Consumption—P_{STAT}

 $P_{STAT} = P_{DC1} + N_{INPUTS} + P_{DC2} + N_{OUTPUTS} + P_{DC3}$

N_{INPUTS} is the number of I/O input buffers used in the design.

N_{OUTPUTS} is the number of I/O output buffers used in the design.

Total Dynamic Power Consumption—P_{DYN}

P_{DYN} = P_{CLOCK} + P_{S-CELL} + P_{C-CELL} + P_{NET} + P_{INPUTS} + P_{OUTPUTS} + P_{MEMORY} + P_{PLL}

Global Clock Contribution—P_{CLOCK}

 $P_{CLOCK} = (P_{AC1} + N_{SPINE}*P_{AC2} + N_{ROW}*P_{AC3} + N_{S-CELL}*P_{AC4})*F_{CLK}$

N_{SPINE} is the number of global spines used in the user design—guidelines are provided in the "Spine Architecture" section of the Global Resources chapter in the *ProASIC3 FPGA Fabric User's Guide*.

N_{ROW} is the number of VersaTile rows used in the design—guidelines are provided in the "Spine Architecture" section of the Global Resources chapter in the *ProASIC3 FPGA Fabric User's Guide*.



Table 2-30 • I/O Output Buffer Maximum Resistances¹ Applicable to Standard I/O Banks

Standard	Drive Strength	R _{PULL-DOWN} (Ω) ²	R _{PULL-UP} (Ω) ³
3.3 V LVTTL / 3.3 V LVCMOS	2 mA	100	300
	4 mA	100	300
	6 mA	50	150
	8 mA	50	150
3.3 V LVCMOS Wide Range ⁴	100 µA	Same as regular 3.3 V LVCMOS	Same as regular 3.3 V LVCMOS
2.5 V LVCMOS	2 mA	100	200
	4 mA	100	200
	6 mA	50	100
	8 mA	50	100
1.8 V LVCMOS	2 mA	200	225
	4 mA	100	112
1.5 V LVCMOS	2 mA	200	224

Notes:

1. These maximum values are provided for informational reasons only. Minimum output buffer resistance values depend on VCCI, drive strength selection, temperature, and process. For board design considerations and detailed output buffer resistances, use the corresponding IBIS models located at http://www.microsemi.com/soc/download/ibis/default.aspx.

2. R_(PULL-DOWN-MAX) = (VOLspec) / IOLspec

3. R_(PULL-UP-MAX) = (VCCImax – VOHspec) / IOHspec

4. All LVCMOS 3.3 V software macros support LVCMOS 3.3 V wide range as specified in the JESD-8B specification.

Table 2-31 • I/O Weak Pull-Up/Pull-Down Resistances Minimum and Maximum Weak Pull-Up/Pull-Down Resistance Values

	R _{(WEAK}	PULL-UP) ¹ Ω)	R _{(WEAK P}	ull-down) ² Ω)
VCCI	Min	Мах	Min	Мах
3.3 V	10 k	45 k	10 k	45 k
3.3 V (wide range I/Os)	10 k	45 k	10 k	45 k
2.5 V	11 k	55 k	12 k	74 k
1.8 V	18 k	70 k	17 k	110 k
1.5 V	19 k	90 k	19 k	140 k

Notes:

R_(WEAK PULL-UP-MAX) = (VCCI_{MAX} - VOH_{spec}) / I_(WEAK PULL-UP-MIN)
 R_(WEAK PULL-DOWN-MAX) = (VOL_{spec}) / I_(WEAK PULL-DOWN-MIN)



Table 2-45 • 3.3 V LVTTL / 3.3 V LVCMOS High Slew

Commercial-Case Conditions: $T_J = 70^{\circ}$ C, Worst-Case VCC = 1.425 V, Worst-Case VCCI = 3.0 V Applicable to Standard I/O Banks

Drive Strength	Speed Grade	t _{DOUT}	t _{DP}	t _{DIN}	t _{PY}	t _{EOUT}	t _{ZL}	t _{zH}	t _{LZ}	t _{HZ}	Units
	-2	0.49	3.29	0.03	0.75	0.32	3.36	2.80	1.79	2.01	ns

Notes:

1. Software default selection highlighted in gray.

2. For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.

Table 2-46 • 3.3 V LVTTL / 3.3 V LVCMOS Low Slew Commercial-Case Conditions: T_J = 70°C, Worst-Case VCC = 1.425 V, Worst-Case VCCI = 3.0 V Applicable to Standard I/O Banks

Drive Strength	Speed Grade	t _{DOUT}	t _{DP}	t _{DIN}	t _{PY}	t _{EOUT}	t _{ZL}	t _{zH}	t _{LZ}	t _{HZ}	Units
2 mA	Std.	0.66	9.46	0.04	1.00	0.43	9.64	8.54	2.07	2.04	ns
	-1	0.56	8.05	0.04	0.85	0.36	8.20	7.27	1.76	1.73	ns
	-2	0.49	7.07	0.03	0.75	0.32	7.20	6.38	1.55	1.52	ns
4 mA	Std.	0.66	9.46	0.04	1.00	0.43	9.64	8.54	2.07	2.04	ns
	-1	0.56	8.05	0.04	0.85	0.36	8.20	7.27	1.76	1.73	ns
	-2	0.49	7.07	0.03	0.75	0.32	7.20	6.38	1.55	1.52	ns
6 mA	Std.	0.66	6.57	0.04	1.00	0.43	6.69	5.98	2.40	2.57	ns
	-1	0.56	5.59	0.04	0.85	0.36	5.69	5.09	2.04	2.19	ns
	-2	0.49	4.91	0.03	0.75	0.32	5.00	4.47	1.79	1.92	ns
8 mA	Std.	0.66	6.57	0.04	1.00	0.43	6.69	5.98	2.40	2.57	ns
	-1	0.56	5.59	0.04	0.85	0.36	5.69	5.09	2.04	2.19	ns
	-2	0.49	4.91	0.03	0.75	0.32	5.00	4.47	1.79	1.92	ns

Note: For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.



Table 2-93 • Minimum and Maximum DC Input and Output Levels

DC Parameter	Description		Max.	Min.	Max.	Min.	Max.	Units
VCCI	Supply Voltage	3.	3.0 3		3.3		.6	V
VOL	Output Low Voltage	0.96	1.27	1.06	1.43	1.30	1.57	V
VOH	Output High Voltage	1.8	2.11	1.92	2.28	2.13	2.41	V
VIL, VIH	Input Low, Input High Voltages	0	3.6	0	3.6	0	3.6	V
VODIFF	Differential Output Voltage	0.625	0.97	0.625	0.97	0.625	0.97	V
VOCM	Output Common-Mode Voltage	1.762	1.98	1.762	1.98	1.762	1.98	V
VICM	Input Common-Mode Voltage	1.01	2.57	1.01	2.57	1.01	2.57	V
VIDIFF	Input Differential Voltage	300		300		300		mV

Table 2-94 • AC Waveforms, Measuring Points, and Capacitive Loads

Input Low (V)	Input High (V)	Measuring Point* (V)
1.64	1.94	Cross point

Note: **Measuring point* = $V_{trip.}$ See Table 2-22 on page 2-22 for a complete table of trip points.

Timing Characteristics

Table 2-95 • LVPECL

Commercial-Case Conditions: T_J = 70°C, Worst-Case VCC = 1.425 V, Worst-Case VCCI = 3.0 V

Speed Grade	t _{DOUT}	t _{DP}	t _{DIN}	t _{PY}	Units
Std.	0.66	1.80	0.04	1.40	ns
-1	0.56	1.53	0.04	1.19	ns
-2	0.49	1.34	0.03	1.05	ns

Note: For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.

Table 2-109 • A3P060 Global Resource Commercial-Case Conditions: T_J = 70°C, VCC = 1.425 V

		-	-2	-	-1	S		
Parameter	Description	Min. ¹	Max. ²	Min. ¹	Max. ²	Min. ¹	Max. ²	Units
t _{RCKL}	Input Low Delay for Global Clock	0.71	0.93	0.81	1.05	0.95	1.24	ns
t _{RCKH}	Input High Delay for Global Clock	0.70	0.96	0.80	1.09	0.94	1.28	ns
t _{RCKMPWH}	Minimum Pulse Width High for Global Clock	0.75		0.85		1.00		ns
t _{RCKMPWL}	Minimum Pulse Width Low for Global Clock	0.85		0.96		1.13		ns
t _{RCKSW}	Maximum Skew for Global Clock		0.26		0.29		0.34	ns

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Power Matters.

Notes:

1. Value reflects minimum load. The delay is measured from the CCC output to the clock pin of a sequential element, located in a lightly loaded row (single element is connected to the global net).

2. Value reflects maximum load. The delay is measured on the clock pin of the farthest sequential element, located in a fully loaded row (all available flip-flops are connected to the global net in the row).

3. For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.

Table 2-110 • A3P125 Global Resource

```
Commercial-Case Conditions: T<sub>J</sub> = 70°C, VCC = 1.425 V
```

		-2		-1		Std.		
Parameter	Description	Min. ¹	Max. ²	Min. ¹	Max. ²	Min. ¹	Max. ²	Units
t _{RCKL}	Input Low Delay for Global Clock	0.77	0.99	0.87	1.12	1.03	1.32	ns
t _{RCKH}	Input High Delay for Global Clock	0.76	1.02	0.87	1.16	1.02	1.37	ns
t _{RCKMPWH}	Minimum Pulse Width High for Global Clock	0.75		0.85		1.00		ns
t _{RCKMPWL}	Minimum Pulse Width Low for Global Clock	0.85		0.96		1.13		ns
t _{RCKSW}	Maximum Skew for Global Clock		0.26		0.29		0.34	ns

Notes:

1. Value reflects minimum load. The delay is measured from the CCC output to the clock pin of a sequential element, located in a lightly loaded row (single element is connected to the global net).

2. Value reflects maximum load. The delay is measured on the clock pin of the farthest sequential element, located in a fully loaded row (all available flip-flops are connected to the global net in the row).

3. For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.

Table 2-113 • A3P600 Global ResourceCommercial-Case Conditions: TJ = 70°C, VCC = 1.425 V

		-2		-1		Std.		
Parameter	Description	Min. ¹	Max. ²	Min. ¹	Max. ²	Min. ¹	Max. ²	Units
t _{RCKL}	Input Low Delay for Global Clock	0.87	1.09	0.99	1.24	1.17	1.46	ns
t _{RCKH}	Input High Delay for Global Clock	0.86	1.11	0.98	1.27	1.15	1.49	ns
t _{RCKMPWH}	Minimum Pulse Width High for Global Clock	0.75		0.85		1.00		ns
t _{RCKMPWL}	Minimum Pulse Width Low for Global Clock	0.85		0.96		1.13		ns
t _{RCKSW}	Maximum Skew for Global Clock		0.26		0.29		0.34	ns

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Power Matters.

Notes:

1. Value reflects minimum load. The delay is measured from the CCC output to the clock pin of a sequential element, located in a lightly loaded row (single element is connected to the global net).

2. Value reflects maximum load. The delay is measured on the clock pin of the farthest sequential element, located in a fully loaded row (all available flip-flops are connected to the global net in the row).

3. For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.

Table 2-114 • A3P1000 Global Resource

```
Commercial-Case Conditions: T<sub>J</sub> = 70°C, VCC = 1.425 V
```

		-2		-1		Std.		
Parameter	Description	Min. ¹	Max. ²	Min. ¹	Max. ²	Min. ¹	Max. ²	Units
t _{RCKL}	Input Low Delay for Global Clock	0.94	1.16	1.07	1.32	1.26	1.55	ns
t _{RCKH}	Input High Delay for Global Clock	0.93	1.19	1.06	1.35	1.24	1.59	ns
t _{RCKMPWH}	Minimum Pulse Width High for Global Clock	0.75		0.85		1.00		ns
t _{RCKMPWL}	Minimum Pulse Width Low for Global Clock	0.85		0.96		1.13		ns
t _{RCKSW}	Maximum Skew for Global Clock		0.26		0.29		0.35	ns

Notes:

1. Value reflects minimum load. The delay is measured from the CCC output to the clock pin of a sequential element, located in a lightly loaded row (single element is connected to the global net).

2. Value reflects maximum load. The delay is measured on the clock pin of the farthest sequential element, located in a fully loaded row (all available flip-flops are connected to the global net in the row).

3. For specific junction temperature and voltage supply levels, refer to Table 2-6 on page 2-6 for derating values.





Figure 2-35 • RAM Reset. Applicable to Both RAM4K9 and RAM512x18.



In critical applications, an upset in the JTAG circuit could allow entrance to an undesired JTAG state. In such cases, Microsemi recommends tying off TRST to GND through a resistor placed close to the FPGA pin.

Note that to operate at all VJTAG voltages, 500 Ω to 1 k Ω will satisfy the requirements.

Special Function Pins

NC

No Connect

This pin is not connected to circuitry within the device. These pins can be driven to any voltage or can be left floating with no effect on the operation of the device.

DC Do Not Connect

This pin should not be connected to any signals on the PCB. These pins should be left unconnected.

Related Documents

User's Guides

ProASIC FPGA Fabric User's Guide http://www.microsemi.com/soc/documents/PA3_UG.pdf

Packaging

The following documents provide packaging information and device selection for low power flash devices.

Product Catalog

http://www.microsemi.com/soc/documents/ProdCat_PIB.pdf

Lists devices currently recommended for new designs and the packages available for each member of the family. Use this document or the datasheet tables to determine the best package for your design, and which package drawing to use.

Package Mechanical Drawings

http://www.microsemi.com/soc/documents/PckgMechDrwngs.pdf

This document contains the package mechanical drawings for all packages currently or previously supplied by Actel. Use the bookmarks to navigate to the package mechanical drawings.

Additional packaging materials are at http://www.microsemi.com/products/solutions/package/docs.aspx.



Package Pin Assignments

(QN68	(QN68
Pin Number	A3P015 Function	Pin Number	A3P015 Function
1	IO82RSB1	37	TRST
2	IO80RSB1	38	VJTAG
3	IO78RSB1	39	IO40RSB0
4	IO76RSB1	40	IO37RSB0
5	GEC0/IO73RSB1	41	GDB0/IO34RSB0
6	GEA0/IO72RSB1	42	GDA0/IO33RSB0
7	GEB0/IO71RSB1	43	GDC0/IO32RSB0
8	VCC	44	VCCIB0
9	GND	45	GND
10	VCCIB1	46	VCC
11	IO68RSB1	47	IO31RSB0
12	IO67RSB1	48	IO29RSB0
13	IO66RSB1	49	IO28RSB0
14	IO65RSB1	50	IO27RSB0
15	IO64RSB1	51	IO25RSB0
16	IO63RSB1	52	IO24RSB0
17	IO62RSB1	53	IO22RSB0
18	IO60RSB1	54	IO21RSB0
19	IO58RSB1	55	IO19RSB0
20	IO56RSB1	56	IO17RSB0
21	IO54RSB1	57	IO15RSB0
22	IO52RSB1	58	IO14RSB0
23	IO51RSB1	59	VCCIB0
24	VCC	60	GND
25	GND	61	VCC
26	VCCIB1	62	IO12RSB0
27	IO50RSB1	63	IO10RSB0
28	IO48RSB1	64	IO08RSB0
29	IO46RSB1	65	IO06RSB0
30	IO44RSB1	66	IO04RSB0
31	IO42RSB1	67	IO02RSB0
32	ТСК	68	IO00RSB0
33	TDI		
34	TMS		
35	VPUMP		

TDO

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Pin Number A3P125 Function Pin Number A3P125 Function A1 GAB2//OSPRSB1 A37 GBB1//O38RSB0 B25 GND A2 IO130RSB1 A38 GBC0/IO38RSB0 B26 NC A3 VCCIB1 A39 VCCIB0 B27 GCB2/IO58RSB0 A4 GFC1/IO128RSB1 A41 IO22RSB0 B28 GND A5 GFB0/IO123RSB1 A41 IO22RSB0 B29 GCB0/IO54RSB0 A6 VCCPLF A42 IO18RSB0 B31 GB21/O33RSB0 A7 GFA1/IO121RSB1 A43 IO14RSB0 B33 V/V/V A10 VCC A46 VCC B34 GB21/O33RSB0 A11 GEB1//O110RSB1 A44 IO11RSB0 B35 GB21/O33RSB0 A13 GEC2//IO14RSB1 B1 IO68RSB1 B36 GIC1/IO36RSB0 A13 GEC2//IO14RSB1 B2 GAC2//O131RSB1 B37 IO26RSB0 A14 IO909RSB1 B2 GAC2//O131RSB		QN132		QN132	QN132	
A1 GAB2/IO69RSB1 A37 GBB1/IO39RSB0 B25 GND A2 IO130RSB1 A38 GBC0/IO33RSB0 B26 NC A3 VCCIB1 A39 VCCIB0 B27 GCB2/IO58RSB0 A4 GFC1/IO128RSB1 A40 IO28RSB0 B28 GND A5 GFB0/IO123RSB1 A41 IO22RSB0 B29 GCB0/IO54RSB0 A6 VCCPLF A42 IO18RSB0 B30 GCC1/IO51RSB0 A7 GFA1/IO121RSB1 A43 IO14RSB0 B31 GND A8 GFC2/IO14RSB1 A44 IO17RSB0 B33 GWN0 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GE2/IO104RSB1 B41 IO68RSB1 B37 IO26RSB0 A13 GE2/IO104RSB1 B4 GAC2/IO131RSB1 B38 IO21RSB0 A14 IO100RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A15 VCC B3 GND	Pin Number	A3P125 Function	Pin Number	A3P125 Function	Pin Number	A3P125 Function
A2 I0130RSB1 A38 GBC0/I035RSB0 B26 NC A3 VCCIB1 A39 VCCIB0 B27 GCB2/I058RSB0 A4 GFC1/I0126RSB1 A40 I028RSB0 B28 GND A5 GFB0/I0123RSB1 A41 I022RSB0 B29 GCB0/I054RSB0 A6 VCCPLF A42 I018RSB0 B30 GCC1/I051RSB0 A7 GFA1/I0121RSB1 A43 I014RSB0 B31 GND A8 GFC2/I0118RSB1 A44 I011RSB0 B32 GB2/I043RSB0 A9 I0115RSB1 A44 I011RSB0 B33 VMV0 A10 VCC A46 VCC B34 GB2/I043RSB0 A13 GEC2/I014RSB1 B41 I069RSB1 B37 I026RSB0 A14 I0100RSB1 B4 GFC0/I0125RSB1 B40 I013RSB0 A15 VCC B3 GND B42 GND A15 VCC B3 GND B43	A1	GAB2/IO69RSB1	A37	GBB1/IO38RSB0	B25	GND
A3 VCCIB1 A39 VCCIB0 B27 GCB2/IO58RSB0 A4 GFC1/IO126RSB1 A40 IO28RSB0 B28 GND A5 GFB0/IO123RSB1 A41 IO28RSB0 B29 GCB0/IO54RSB0 A6 VCCPLF A42 IO18RSB0 B30 GCC1/IO51RSB0 A7 GFA1/IO121RSB1 A44 IO11RSB0 B31 GND A8 GFC2/IO118RSB1 A44 IO11RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEB1/IO110RSB1 A47 GAC1/IO05RSB0 B35 GBC1/IO38RSB0 A12 GEA0/IO107RSB1 A48 GAB0/IO28RSB0 B36 GND A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A14 IO109RSB1 B4 GFC0/IO125RSB1 B38 IO21RSB0 A14 IO99RSB1 B4 GFD2/IO119RSB1 B44 GNDQ A17 IO96RSB1 B8	A2	IO130RSB1	A38	GBC0/IO35RSB0	B26	NC
A4 GFC1/I/0126RSB1 A40 IO28RSB0 B28 GND A5 GFB0/0123RSB1 A41 IO22RSB0 B30 GCC1/I/054RSB0 A6 VCCPLF A42 IO18RSB0 B30 GCC1/I/054RSB0 A7 GFA1/I/0121RSB1 A43 IO14RSB0 B31 GB2//043RSB0 A9 IO115RSB1 A44 IO17RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA//039RSB0 A11 GEB1//0110RSB1 A45 IO07RSB0 B35 GBC1//036RSB0 A11 GEA//0107RSB1 A48 GAD//002RSB0 B36 GND A13 GEC2/0104RSB1 B1 IO668RSB1 B37 IO266RSB0 A15 VCC B3 GND B38 IO218RSB0 A16 IO99RSB1 B4 GFC0//0127SRS1 B40 IO138RS0 A17 IO468RSB1 B5 VCOMPLF B41 IO088RS0 A20 IO35RSB1 B6 GND <td>A3</td> <td>VCCIB1</td> <td>A39</td> <td>VCCIB0</td> <td>B27</td> <td>GCB2/IO58RSB0</td>	A3	VCCIB1	A39	VCCIB0	B27	GCB2/IO58RSB0
A5 GFB0/IO123RSB1 A41 IO22RSB0 B29 GCB0/IO54RSB0 A6 VCCPLF A42 IO18RSB0 B30 GCC1/IO51RSB0 A7 GFA1/0121RSB1 A43 IO14RSB0 B32 GB2/IO43RSB0 A9 IO115RSB1 A44 IO11RSB0 B32 GB2/IO43RSB0 A9 IO115RSB1 A45 IO07RSB0 B33 VMV0 A10 VCC A46 VCC B3 GB2/IO43RSB0 A11 GEB1/IO17RSB1 A45 IO07RSB0 B35 GB2/IO39RSB0 A13 GEC2/IO104RSB1 B1 IO68RSB1 B37 IO26RSB0 A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A15 VCC B3 GND B40 IO13RSB0 A16 IO99RSB1 B4 GFC2/IO19RSB1 B43 GAC0/IO4RSB0 A20 IO68SRS1 B6 GND B44 GNDQ A21 IO79RSB1 B7 GFB2/IO119RSB1 </td <td>A4</td> <td>GFC1/IO126RSB1</td> <td>A40</td> <td>IO28RSB0</td> <td>B28</td> <td>GND</td>	A4	GFC1/IO126RSB1	A40	IO28RSB0	B28	GND
A6 VCCPLF A42 I018RSB0 B30 GCC1/I051RSB0 A7 GFA1/I0121RSB1 A43 I014RSB0 B31 GND A8 GFC2/I0118RSB1 A44 I011RSB0 B32 GBB2/I043RSB0 A9 I0115RSB1 A45 I007RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA0/I039RSB0 A11 GEB1/I0110RSB1 A47 GAC1/I005RSB0 B35 GBC1/I039RSB0 A13 GEC2/I014RSB1 B1 I068RSB1 B37 I026RSB0 A14 I0100RSB1 B2 GAC2/I0131RSB1 B38 I021RSB0 A15 VCC B3 GND B39 GND A16 I099RSB1 B4 GFC0/I012SRS1 B40 I013RSB0 A18 I094RSB1 B6 GND B41 I008RSB1 A20 I068SRS1 B8 I011RSB1 B44 GNDQ A21 I079RSB1 B11 VMV1 C3	A5	GFB0/IO123RSB1	A41	IO22RSB0	B29	GCB0/IO54RSB0
A7 GFA1/I0121RSB1 A43 I014RSB0 B31 GND A8 GFC2/I0118RSB1 A44 I011RSB0 B32 GBB2/I043RSB0 A9 I0115RSB1 A45 I007RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA//I039RSB0 A11 GEB1//I010RSB1 A47 GAC1//I005RSB0 B35 GBC1//I036RSB0 A12 GEA0/I0107RSB1 A48 GAC2/I011RSB1 B36 GND A13 GEC2//I014RSB1 B1 I068RSB1 B37 I026RSB0 A14 I0100RSB1 B2 GAC2/I013RSB1 B38 I021RSB0 A16 I099RSB1 B4 GFC0//I012RSB1 B39 GND A16 I099RSB1 B5 VC0MPLF B41 I008RSB0 A20 I085RSB1 B8 I0116RSB1 B44 GNDQ A21 I079RSB1 B11 VMV1 C3 VCC A23 GDB2//071RSB1 B11 VMV1	A6	VCCPLF	A42	IO18RSB0	B30	GCC1/IO51RSB0
A8 GFC2/I0118RSB1 A44 I011RSB0 B32 GBB2/I043RSB0 A9 I0115RSB1 A45 I007RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA///039RSB0 A11 GEB1/I0110RSB1 A47 GAC1/I005RSB0 B35 GBC1/I036RSB0 A12 GEA0/I0107RSB1 A48 GAB//I02RSB0 B36 GND A13 GEC2/I0104RSB1 B1 I068RSB1 B37 I026RSB0 A14 I0100RSB1 B2 GAC2/I0131RSB1 B38 I021RSB0 A15 VCC B3 GND B39 GND A16 I099RSB1 B4 GFC0//0125RSB1 B40 I013RSB0 A18 I094RSB1 B6 GND B42 GND A20 I085RSB1 B8 I0116RSB1 B44 GNDQ A21 I079RSB1 B10 GEB0//0109RSB1 C2 I0132RSB1 A22 VCC B10 GEB0//0109RSB1	A7	GFA1/IO121RSB1	A43	IO14RSB0	B31	GND
A9 I0115RSB1 A45 I007RSB0 B33 VMV0 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEB1/IO110RSB1 A47 GAC1/IO05RSB0 B35 GBC1/IO36RSB0 A12 GEA0/IO107RSB1 A48 GAB0/IO2RSB0 B36 GND A13 GEC2/IO14RSB1 B1 IO68RSB1 B37 IO26RS80 A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RS80 A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RS80 A17 IO96RSB1 B5 VCOMPLF B41 IO08RS80 A18 IO94RSB1 B6 GND B42 GND A20 I085RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO19RSB1 C2 IO132RSB1 A22 VCC B13 IO101RSB1 C4 <td>A8</td> <td>GFC2/IO118RSB1</td> <td>A44</td> <td>IO11RSB0</td> <td>B32</td> <td>GBB2/IO43RSB0</td>	A8	GFC2/IO118RSB1	A44	IO11RSB0	B32	GBB2/IO43RSB0
A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEB1/IO110RSB1 A47 GAC1/IO05RSB0 B35 GBC1/IO36RSB0 A12 GEA0/IO107RSB1 A48 GAB0/IO2RSB0 B36 GND A13 GEC2/IO104RSB1 B1 IO68RSB1 B37 IO26RSB0 A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A20 IO85RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO4RSB0 A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO19RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1	A9	IO115RSB1	A45	IO07RSB0	B33	VMV0
A11 GEB1/I0110RSB1 A47 GAC1/I005RSB0 B35 GBC1/I036RSB0 A12 GEA0/I0107RSB1 A48 GAB0/I002RSB0 B36 GND A13 GEC2/I0104RSB1 B1 I068RSB1 B37 I026RSB0 A14 I0100RSB1 B2 GAC2/I0131RSB1 B38 I021RSB0 A16 I099RSB1 B4 GFC0/I0125RSB1 B39 GND A17 I096RSB1 B5 VCOMPLF B41 I0088RS0 A18 I094RSB1 B6 GND B42 GND A20 I085RSB1 B8 I0116RSB1 B43 GAC0/I04RSB0 A21 I079RSB1 B9 GND C1 GAA2/I067RSB1 A22 VCC B10 GEB0/I0109RSB1 C2 I0132RSB1 A23 GDB2/I071RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/I0105RSB1 C4 GFB1/I0124RSB1 A25 TRST B13 I0101RSB1	A10	VCC	A46	VCC	B34	GBA0/IO39RSB0
A12 GEA0/IO107RSB1 A48 GAB0/IO02RSB0 B36 GND A13 GEC2/IO104RSB1 B1 IO68RSB1 B37 IO26RSB0 A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO4RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GA2/IO67RSB1 A22 VCC B10 GEB2/IO105RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 <	A11	GEB1/IO110RSB1	A47	GAC1/IO05RSB0	B35	GBC1/IO36RSB0
A13 GEC2/IO104RSB1 B1 IO68RSB1 B37 IO26RSB0 A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO4RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A26 GDC1/IO61RSB0 B14 GND C6 <	A12	GEA0/IO107RSB1	A48	GAB0/IO02RSB0	B36	GND
A14 IO100RSB1 B2 GAC2/IO131RSB1 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 I	A13	GEC2/IO104RSB1	B1	IO68RSB1	B37	IO26RSB0
A15 VCC B3 GND B39 GND A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO199RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/I/061RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO11	A14	IO100RSB1	B2	GAC2/IO131RSB1	B38	IO21RSB0
A16 IO99RSB1 B4 GFC0/IO125RSB1 B40 IO13RSB0 A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A28 IO60RSB0 B16 IO95RSB1 C3 VCCIB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C1	A15	VCC	B3	GND	B39	GND
A17 IO96RSB1 B5 VCOMPLF B41 IO08RSB0 A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA0/IO56RSB0 B19 IO81RSB1 C11 <td>A16</td> <td>IO99RSB1</td> <td>B4</td> <td>GFC0/IO125RSB1</td> <td>B40</td> <td>IO13RSB0</td>	A16	IO99RSB1	B4	GFC0/IO125RSB1	B40	IO13RSB0
A18 IO94RSB1 B6 GND B42 GND A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GND A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO199RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11	A17	IO96RSB1	B5	VCOMPLF	B41	IO08RSB0
A19 IO91RSB1 B7 GFB2/IO119RSB1 B43 GAC0/IO04RSB0 A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A33 IO49RSB0 B21 GNDQ	A18	IO94RSB1	B6	GND	B42	GND
A20 IO85RSB1 B8 IO116RSB1 B44 GNDQ A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B19 IO81RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A33 IO49RSB0 B21 GNDQ C	A19	IO91RSB1	B7	GFB2/IO119RSB1	B43	GAC0/IO04RSB0
A21 IO79RSB1 B9 GND C1 GAA2/IO67RSB1 A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO15RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14	A20	IO85RSB1	B8	IO116RSB1	B44	GNDQ
A22 VCC B10 GEB0/IO109RSB1 C2 IO132RSB1 A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A33 IO49RSB0 B21 GNDQ C12 IO103RSB1 A33 IO49RSB0 B23 TDO C14 IO97RSB1 A35 IO44RSB0 B24 GDC0/IO62RSB0	A21	IO79RSB1	B9	GND	C1	GAA2/IO67RSB1
A23 GDB2/IO71RSB1 B11 VMV1 C3 VCC A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B19 IO81RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 <	A22	VCC	B10	GEB0/IO109RSB1	C2	IO132RSB1
A24 TDI B12 GEB2/IO105RSB1 C4 GFB1/IO124RSB1 A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A33 IO49RSB0 B20 GND C12 IO103RSB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A23	GDB2/IO71RSB1	B11	VMV1	C3	VCC
A25 TRST B13 IO101RSB1 C5 GFA0/IO122RSB1 A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A24	TDI	B12	GEB2/IO105RSB1	C4	GFB1/IO124RSB1
A26 GDC1/IO61RSB0 B14 GND C6 GFA2/IO120RSB1 A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A25	TRST	B13	IO101RSB1	C5	GFA0/IO122RSB1
A27 VCC B15 IO98RSB1 C7 IO117RSB1 A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C14 IO97RSB1 A34 VCC B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A26	GDC1/IO61RSB0	B14	GND	C6	GFA2/IO120RSB1
A28 IO60RSB0 B16 IO95RSB1 C8 VCCIB1 A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A27	VCC	B15	IO98RSB1	C7	IO117RSB1
A29 GCC2/IO59RSB0 B17 GND C9 GEA1/IO108RSB1 A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A28	IO60RSB0	B16	IO95RSB1	C8	VCCIB1
A30 GCA2/IO57RSB0 B18 IO87RSB1 C10 GNDQ A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO89RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A29	GCC2/IO59RSB0	B17	GND	C9	GEA1/IO108RSB1
A31 GCA0/IO56RSB0 B19 IO81RSB1 C11 GEA2/IO106RSB1 A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A30	GCA2/IO57RSB0	B18	IO87RSB1	C10	GNDQ
A32 GCB1/IO53RSB0 B20 GND C12 IO103RSB1 A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A31	GCA0/IO56RSB0	B19	IO81RSB1	C11	GEA2/IO106RSB1
A33 IO49RSB0 B21 GNDQ C13 VCCIB1 A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A32	GCB1/IO53RSB0	B20	GND	C12	IO103RSB1
A34 VCC B22 TMS C14 IO97RSB1 A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A33	IO49RSB0	B21	GNDQ	C13	VCCIB1
A35 IO44RSB0 B23 TDO C15 IO93RSB1 A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A34	VCC	B22	TMS	C14	IO97RSB1
A36 GBA2/IO41RSB0 B24 GDC0/IO62RSB0 C16 IO89RSB1	A35	IO44RSB0	B23	TDO	C15	IO93RSB1
	A36	GBA2/IO41RSB0	B24	GDC0/IO62RSB0	C16	IO89RSB1



Pin Number A3P250 Function Pin Number A3P250 Function Pin Number A3P250 Function A1 GAB2/I0117UPB3 A37 GBB/I/039RSB0 B25 GND A3 VCCIB3 A38 GBC0/I039RSB0 B26 I054PDB1 A4 GFC1/I010PDB3 A39 VCCIB0 B27 GCB2/I052PDB1 A4 GFC1/I010PDB3 A41 I022RSB0 B28 GND A5 GFB0/I0109NPB3 A41 I022RSB0 B30 GCC1/I048PDB1 A6 VCCPLF A42 I018RSB0 B31 GND A6 GFC2/I0105PPB3 A44 I011RSB0 B33 GV/V1 A10 VCC A46 VCC B34 GBA0/I039RSB0 A11 GEA1/I098PB3 A47 GAC1/I005RSB0 B35 GBC1/I039RSB0 A13 GEC2/I095RSB2 B1 I0118VDB3 B37 I026RSB0 A13 GEC2/I095RSB2 B3 GMD B39 GND A14 I090RSB2		QN132		QN132		QN132	
A1 GAE2/I0117UPB3 A37 GBB1/I038RS80 B25 GND A2 I0117VPB3 A38 GBC0/I035RS80 B26 I054PDB1 A3 VCCIB3 A39 VCCIB0 B27 GCE2/I052PDB1 A4 GFC1/I0110PDB3 A40 I028RS80 B28 GND A5 GFB0/I019NPB3 A41 I022RS80 B29 GCE0/I049NDB1 A6 VCCPLF A42 I018RS80 B30 GCC1/I048PDB1 A7 GFA1/I0108PPB3 A43 I014RS80 B31 GND A8 GFC2/I0105PPB3 A44 I011RS80 B32 GBE2/I042PDB1 A9 I0103NDB3 A45 I007RS80 B33 GNV MV1 A10 VCC B44 I0118VDB3 B33 GB2/I033RS80 B34 GB2/I033RS80 A13 GEC2/I095RS82 B1 I0118VDB3 B37 I026RS80 A14 I091RS82 B3 GND B38 I021RS80 A16 <th>Pin Number</th> <th>A3P250 Function</th> <th>Pin Number</th> <th>A3P250 Function</th> <th></th> <th>Pin Number</th> <th>A3P250 Function</th>	Pin Number	A3P250 Function	Pin Number	A3P250 Function		Pin Number	A3P250 Function
A2 IO117VPB3 A38 GBC0//035RSB0 B26 IO54PDB1 A3 VCCIB3 A39 VCCIB0 B27 GCB2//052PDB1 A4 GFC1//0110PDB3 A40 IO28RSB0 B28 GCB//049NDB1 A6 VCCPLF A42 IO18RSB0 B30 GCC1//048PDB1 A7 GFA1//0108PPB3 A44 IO11RSB0 B31 GND A8 GFC2//0105PPB3 A44 IO11RSB0 B32 GBB2//042PDB1 A9 IO103NDB3 A45 IO07RSB0 B33 VMV1 A10 VCC A46 VCC B34 GBA0//039RSB0 A13 GEC2//05RSB2 B1 IO118VDB3 B37 IO28RSB0 A14 IO97RSB2 B4 GFC0//0110NDB3 B40 IO13RSB0 A14 IO97RSB2 B5 VCOMPLF B41 IO08RSB0 A15 VCC B3 GA0//03RSB0 B42 GND A14 IO97RSB2 B5 VCOMPLF	A1	GAB2/IO117UPB3	A37	GBB1/IO38RSB0		B25	GND
A3 VCCIB3 A39 VCCIB0 B27 GCB2/I052PDB1 A4 GFC1/I0110PDB3 A40 I028R5B0 B28 GND A5 GFB0/I0109NPB3 A41 I022R5B0 B29 GCB0/I049NDB1 A6 VCCPLF A42 I018R5B0 B30 GCC1/I048PDB1 A7 GFA/I0105PPB3 A44 I011R5B0 B32 GB2/I042PDB1 A9 I0103NDB3 A45 I007R5B0 B33 VMV1 A10 VCC A46 VCC B34 GB2/I042PDB1 A11 GEA/I/058PB3 A44 I011R5B0 B32 GB82/I042PDB1 A12 GEA/I/058PB3 A47 GAC/I/05R5B0 B35 GBC/I/038R5B0 A13 GEC2/I096R582 B1 I0118VDB3 B37 I026R5B0 A14 I091R582 B1 GC0/I014NDB3 B37 I026R5B0 A14 I098R582 B6 GND B42 GND A16 I098R582 B7 GFB2/I0	A2	IO117VPB3	A38	GBC0/IO35RSB0		B26	IO54PDB1
A4 GFC1/IO110PDB3 A40 IO28RSB0 B28 GND A5 GFB0/IO109NPB3 A41 IO22RSB0 B29 GCB0/IO49NDB1 A6 VCCPLF A42 IO18RSB0 B30 GCC1/IO48PDB1 A7 GFA1/IO108PPB3 A44 IO11RSB0 B31 GND A8 GFC2/IO105PPB3 A44 IO17RSB0 B33 V/W1 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEA1/IO98PPB3 A44 IO17RSB0 B35 GBC1/IO36RSB0 A11 GEA1/IO98PPB3 A48 GAB0/IO2RSB0 B36 GND A13 GEC2/IO99RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A15 VCC B3 GND B42 GND A14 IO91RSB2 B5 VCOMPLF B41 IO08RSB0 A17 IO26RSB2 B6 GND B	A3	VCCIB3	A39	VCCIB0		B27	GCB2/IO52PDB1
A5 GFB0/IO109NPB3 A41 IO22RSB0 B29 GCB0/IO49NDB1 A6 VCCPLF A42 IO18RSB0 B30 GCC1/IO48PDB1 A7 GFA1/IO108PPB3 A43 IO14RSB0 B31 GhD A8 GFC2/IO105PPB3 A44 IO11RSB0 B32 GBB2/IO42PDB1 A9 IO103NDB3 A45 IO07RS80 B33 VMV1 A10 VCC A46 VCC B34 GBA0/IO39RS0 A11 GEA1/IO98PB3 A47 GAC1/IO67RS0 B35 GBC1/IO38RS0 A13 GEC2/IO99RS82 B1 IO118VDB3 B37 IO26RS80 A14 IO91RS82 B2 GAC2/IO110DB3 B36 GND A15 VCC B3 GND B40 IO13RS80 A18 IO82RS82 B6 GND B42 GND A19 IO82RS82 B10 GEB2/IO69RS82 B44 GNDQ A21 IO76RS82 B9 GND C1G	A4	GFC1/IO110PDB3	A40	IO28RSB0		B28	GND
A6 VCCPLF A42 I018RSB0 B30 GCC1//048PDB1 A7 GFA1//0108PPB3 A43 I014RSB0 B31 GND A8 GFC2//0105PPB3 A44 I011RSB0 B32 GBB2//042PDB1 A9 I0103NDB3 A45 I007RSB0 B33 VMV1 A10 VCC A46 VCC B34 GBA//039RS0 A11 GEA//098PPB3 A47 GAC1//005RSB0 B35 GBC1//036RSB0 A13 GEC2//095RSB2 B1 I0118VDB3 B37 I026RSB0 A15 VCC B3 GND B38 I021RSB0 A16 I090RSB2 B4 GFC0//0110NDB3 B40 I013RSB0 A18 I085RSB2 B5 VCOMPLF B41 I008RSB0 A20 I076RSB2 B8 I013PDB3 B44 GND A22 VCC B10 GEB0//099NDB3 C2 I0116VDB3 A22 VCC B11 VMV3 C3	A5	GFB0/IO109NPB3	A41	IO22RSB0		B29	GCB0/IO49NDB1
A7 GFA1/I0108PPB3 A43 I014RSB0 B31 GND A8 GFC2/I0105PPB3 A44 I011RSB0 B32 GBB2/I042PDB1 A9 I0103NDB3 A45 I007RSB0 B33 VMV1 A10 VCC A46 VCC B34 GBA0/I039RSB0 A11 GEA1/I098PPB3 A46 VCC B34 GBA0/I039RSB0 A12 GEA0/I098NPB3 A46 GAC1/I005RSB0 B35 GBC1/I036RSB0 A13 GEC2/I096RSB2 B1 I0118VDB3 B37 I026RSB0 A14 I091RSB2 B2 GAC2/I0116UDB3 B38 I021RSB0 A15 VCC B3 GND B39 GND A16 I090RSB2 B4 GFC0/I0110ND3 B40 I013RSB0 A18 I085RSB2 B6 GND B42 GND A20 I076RSB2 B8 I013PDB3 B44 GNDQ A23 GDB2/I062RSB2 B11 VMV3 C3 <td>A6</td> <td>VCCPLF</td> <td>A42</td> <td>IO18RSB0</td> <td></td> <td>B30</td> <td>GCC1/IO48PDB1</td>	A6	VCCPLF	A42	IO18RSB0		B30	GCC1/IO48PDB1
A8 GFC2/IO105PPB3 A44 IO11RSB0 B32 GBB2/IO42PDB1 A9 IO103NDB3 A45 IO07RSB0 B33 VMV1 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEA1/IO98PPB3 A47 GAC1/IO05RSB0 B35 GBC1/IO36RSB0 A12 GEA0/IO98NPB3 A46 GAC2/IO18VDB3 B36 GND A13 GEC2/IO95RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A15 VCC B3 GND B40 IO13RSB0 A15 VCC B3 GND B40 IO3RSB0 A18 IO85RSB2 B5 VCOMPLF B41 IO08RSB0 A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 <td>A7</td> <td>GFA1/IO108PPB3</td> <td>A43</td> <td>IO14RSB0</td> <td></td> <td>B31</td> <td>GND</td>	A7	GFA1/IO108PPB3	A43	IO14RSB0		B31	GND
A9 IO103NDB3 A45 IO07RSB0 B33 VMV1 A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEA1/IO98PPB3 A47 GAC1/IO05RSB0 B35 GBC1/IO36RSB0 A12 GEA0/IO98NPB3 A48 GAB0/IO2RSB0 B36 GND A13 GEC2/IO95RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO85RSB2 B6 GND B42 GND A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C	A8	GFC2/IO105PPB3	A44	IO11RSB0		B32	GBB2/IO42PDB1
A10 VCC A46 VCC B34 GBA0/IO39RSB0 A11 GEA1/IO98PPB3 A47 GAC1/IO05RSB0 B35 GBC1/IO36RSB0 A12 GEA0/IO98NPB3 A48 GAB0/IO02RSB0 B36 GND A13 GEC2/IO96RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO88RSB2 B6 GND B42 GND A20 IO76RSB2 B8 IO103PDB3 B44 GNQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C5<	A9	IO103NDB3	A45	IO07RSB0		B33	VMV1
A11 GEA1/I/098PPB3 A47 GAC1/I/005RSB0 B35 GBC1/I/036RSB0 A12 GEA0/IO98NPB3 A48 GAB0/IO02RSB0 B36 GND A13 GEC2/IO95RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO67RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO85RSB2 B6 GND B42 GND A19 IO82RSB2 B7 GFB2/IO106PSB3 B44 GNDQ A20 IO76RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFA/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND <td>A10</td> <td>VCC</td> <td>A46</td> <td>VCC</td> <td></td> <td>B34</td> <td>GBA0/IO39RSB0</td>	A10	VCC	A46	VCC		B34	GBA0/IO39RSB0
A12 GEA0/IO98NPB3 A48 GAB0/IO02RSB0 B36 GND A13 GEC2/IO95RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO67RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO68SRSB2 B6 GND B42 GND A20 IO76RSB2 B8 IO13PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA	A11	GEA1/IO98PPB3	A47	GAC1/IO05RSB0		B35	GBC1/IO36RSB0
A13 GEC2/IO95RSB2 B1 IO118VDB3 B37 IO26RSB0 A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO82RSB2 B6 GND B42 GND A20 IO76RSB2 B8 IO139DB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/O118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO117PB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 </td <td>A12</td> <td>GEA0/IO98NPB3</td> <td>A48</td> <td>GAB0/IO02RSB0</td> <td></td> <td>B36</td> <td>GND</td>	A12	GEA0/IO98NPB3	A48	GAB0/IO02RSB0		B36	GND
A14 IO91RSB2 B2 GAC2/IO116UDB3 B38 IO21RSB0 A15 VCC B3 GND B39 GND A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO82RSB2 B6 GND B42 GND A19 IO82RSB2 B7 GFB2/IO106PSB3 B43 GAC0/IO4RSB0 A20 IO76RSB2 B8 IO13PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VD83 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO17PB3 A27 VCC B15 IO89RSB2 C7 IO1015N	A13	GEC2/IO95RSB2	B1	IO118VDB3		B37	IO26RSB0
A15 VCC B3 GND B39 GND A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO85RSB2 B6 GND B42 GND A19 IO82RSB2 B7 GFB2/IO106PSB3 B43 GAC0/IO04RSB0 A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1//IO19PPB3 A25 TRST B13 IO92RSB2 C5 GFA0//IO18NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2//IO17PSB3 A28 IO54NDB1 B16 IO86RSB2 C8 VC	A14	IO91RSB2	B2	GAC2/IO116UDB3		B38	IO21RSB0
A16 IO90RSB2 B4 GFC0/IO110NDB3 B40 IO13RSB0 A17 IO87RSB2 B5 VCOMPLF B41 IO08RSB0 A18 IO85RSB2 B6 GND B42 GND A19 IO82RSB2 B7 GFB2/IO106PSB3 B44 GND A20 IO76RSB2 B8 IO103PDB3 B44 GND A21 IO70RSB2 B9 GND C1 GA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A28 IO54NDB1 B16 IO86RSB2 C3 VCCIB3 A30 GCA0/IO50NPB1 B19 IO72RSB2 C11	A15	VCC	B3	GND		B39	GND
A17 IO87RSB2 B5 VCOMPLF B41 IO88RSB0 A18 IO85RSB2 B6 GND B42 GND A19 IO82RSB2 B7 GFB2/IO106PSB3 B43 GAC0/IO04RSB0 A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A28 IO54NDB1 B16 IO86RSB2 C3 VCCIB3 A30 GCA2/IO51PPB1 B18 IO78RSB2 C11 GEA2/IO97RSB2 A31 GCA0/IO50NPB1 B19 IO72RSB2 <td< td=""><td>A16</td><td>IO90RSB2</td><td>B4</td><td>GFC0/IO110NDB3</td><td></td><td>B40</td><td>IO13RSB0</td></td<>	A16	IO90RSB2	B4	GFC0/IO110NDB3		B40	IO13RSB0
A18 I085RSB2 B6 GND B42 GND A19 I082RSB2 B7 GFB2/I0106PSB3 B43 GAC0/I004RSB0 A20 I076RSB2 B8 I0103PDB3 B44 GND A21 I070RSB2 B9 GND C1 GAA2/I0118UDB3 A22 VCC B10 GEB0/I099NDB3 C2 I0116VDB3 A23 GDB2/I062RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/I096RSB2 C4 GFB1/I0109PPB3 A25 TRST B13 I092RSB2 C5 GFA0/I0108NPB3 A26 GDC1/I058UDB1 B14 GND C6 GFA2/I0107PSB3 A28 I054NDB1 B15 I089RSB2 C7 I0105NPB3 A29 I052NDB1 B17 GND C9 GEB1/I099PDB3 A30 GCA2/I051PPB1 B18 I078RSB2 C10 GNDQ A31 GCA0/I050NPB1 B19 I072RSB2 C11 </td <td>A17</td> <td>IO87RSB2</td> <td>B5</td> <td>VCOMPLF</td> <td></td> <td>B41</td> <td>IO08RSB0</td>	A17	IO87RSB2	B5	VCOMPLF		B41	IO08RSB0
A19 IO82RSB2 B7 GFB2/IO106PSB3 B43 GAC0/IO04RSB0 A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO17PSB3 A27 VCC B15 IO89RSB2 C7 IO165NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A30 GCA2/IO51PPB1 B18 IO78RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B20 GNDQ	A18	IO85RSB2	B6	GND		B42	GND
A20 IO76RSB2 B8 IO103PDB3 B44 GNDQ A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO17PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A30 GCA2/IO51PPB1 B17 GND C9 GEB1/IO9PDB3 A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO41NPB1 B20 GND C12 IO94RSB2 A34 VCC B22 TMS C14 <t< td=""><td>A19</td><td>IO82RSB2</td><td>B7</td><td>GFB2/IO106PSB3</td><td></td><td>B43</td><td>GAC0/IO04RSB0</td></t<>	A19	IO82RSB2	B7	GFB2/IO106PSB3		B43	GAC0/IO04RSB0
A21 IO70RSB2 B9 GND C1 GAA2/IO118UDB3 A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A30 GCA2/IO51PPB1 B18 IO72RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B21 GNDQ C12 IO94RSB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B24 GDC0/IO58VDB1 C16	A20	IO76RSB2	B8	IO103PDB3		B44	GNDQ
A22 VCC B10 GEB0/IO99NDB3 C2 IO116VDB3 A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A29 IO52NDB1 B17 GND C9 GEB1/IO99PDB3 A30 GCA2/IO51PPB1 B18 IO78RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B21 GNDQ C12 IO94RSB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B24 GDC0/IO58VDB1 C16	A21	IO70RSB2	B9	GND		C1	GAA2/IO118UDB3
A23 GDB2/IO62RSB2 B11 VMV3 C3 VCC A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A29 IO52NDB1 B17 GND C9 GEB1/IO99PDB3 A30 GCA2/IO51PPB1 B19 IO72RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B20 GND C12 IO94RSB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A22	VCC	B10	GEB0/IO99NDB3		C2	IO116VDB3
A24 TDI B12 GEB2/IO96RSB2 C4 GFB1/IO109PPB3 A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A29 IO52NDB1 B17 GND C9 GEB1/IO99PDB3 A30 GCA2/IO51PPB1 B18 IO78RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B21 GNDQ C12 IO94RSB2 A34 VCC B22 TMS C14 IO88RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A23	GDB2/IO62RSB2	B11	VMV3		C3	VCC
A25 TRST B13 IO92RSB2 C5 GFA0/IO108NPB3 A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A29 IO52NDB1 B17 GND C9 GEB1/IO99PDB3 A30 GCA2/IO51PPB1 B19 IO72RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B20 GNDQ C13 VCCIB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A24	TDI	B12	GEB2/IO96RSB2		C4	GFB1/IO109PPB3
A26 GDC1/IO58UDB1 B14 GND C6 GFA2/IO107PSB3 A27 VCC B15 IO89RSB2 C7 IO105NPB3 A28 IO54NDB1 B16 IO86RSB2 C8 VCCIB3 A29 IO52NDB1 B17 GND C9 GEB1/IO99PDB3 A30 GCA2/IO51PPB1 B18 IO78RSB2 C10 GNDQ A31 GCA0/IO50NPB1 B19 IO72RSB2 C11 GEA2/IO97RSB2 A33 IO47NSB1 B21 GNDQ C12 IO94RSB2 A35 IO41NPB1 B23 TDO C14 IO88RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A25	TRST	B13	IO92RSB2		C5	GFA0/IO108NPB3
A27VCCB15IO89RSB2C7IO105NPB3A28IO54NDB1B16IO86RSB2C8VCCIB3A29IO52NDB1B17GNDC9GEB1/IO99PDB3A30GCA2/IO51PPB1B18IO78RSB2C10GNDQA31GCA0/IO50NPB1B19IO72RSB2C11GEA2/IO97RSB2A32GCB1/IO49PDB1B20GNDC12IO94RSB2A33IO47NSB1B21GNDQC13VCCIB2A34VCCB22TMSC14IO88RSB2A35IO41NPB1B23TDOC15IO84RSB2A36GBA2/IO41PPB1B24GDC0/IO58VDB1C16IO80RSB2	A26	GDC1/IO58UDB1	B14	GND		C6	GFA2/IO107PSB3
A28IO54NDB1B16IO86RSB2C8VCCIB3A29IO52NDB1B17GNDC9GEB1/IO99PDB3A30GCA2/IO51PPB1B18IO78RSB2C10GNDQA31GCA0/IO50NPB1B19IO72RSB2C11GEA2/IO97RSB2A32GCB1/IO49PDB1B20GNDQC12IO94RSB2A33IO47NSB1B21GNDQC13VCCIB2A34VCCB22TMSC14IO88RSB2A35IO41NPB1B23TDOC15IO84RSB2A36GBA2/IO41PPB1B24GDC0/IO58VDB1C16IO80RSB2	A27	VCC	B15	IO89RSB2		C7	IO105NPB3
A29IO52NDB1B17GNDC9GEB1/IO99PDB3A30GCA2/IO51PPB1B18IO78RSB2C10GNDQA31GCA0/IO50NPB1B19IO72RSB2C11GEA2/IO97RSB2A32GCB1/IO49PDB1B20GNDC12IO94RSB2A33IO47NSB1B21GNDQC13VCCIB2A34VCCB22TMSC14IO88RSB2A35IO41NPB1B23TDOC15IO84RSB2A36GBA2/IO41PPB1B24GDC0/IO58VDB1C16IO80RSB2	A28	IO54NDB1	B16	IO86RSB2		C8	VCCIB3
A30GCA2/IO51PPB1B18IO78RSB2C10GNDQA31GCA0/IO50NPB1B19IO72RSB2C11GEA2/IO97RSB2A32GCB1/IO49PDB1B20GNDC12IO94RSB2A33IO47NSB1B21GNDQC13VCCIB2A34VCCB22TMSC14IO88RSB2A35IO41NPB1B23TDOC15IO84RSB2A36GBA2/IO41PPB1B24GDC0/IO58VDB1C16IO80RSB2	A29	IO52NDB1	B17	GND		C9	GEB1/IO99PDB3
A31GCA0/IO50NPB1B19IO72RSB2C11GEA2/IO97RSB2A32GCB1/IO49PDB1B20GNDC12IO94RSB2A33IO47NSB1B21GNDQC13VCCIB2A34VCCB22TMSC14IO88RSB2A35IO41NPB1B23TDOC15IO84RSB2A36GBA2/IO41PPB1B24GDC0/IO58VDB1C16IO80RSB2	A30	GCA2/IO51PPB1	B18	IO78RSB2		C10	GNDQ
A32 GCB1/IO49PDB1 B20 GND C12 IO94RSB2 A33 IO47NSB1 B21 GNDQ C13 VCCIB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B23 TDO C15 IO84RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A31	GCA0/IO50NPB1	B19	IO72RSB2		C11	GEA2/IO97RSB2
A33 IO47NSB1 B21 GNDQ C13 VCCIB2 A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B23 TDO C15 IO84RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A32	GCB1/IO49PDB1	B20	GND		C12	IO94RSB2
A34 VCC B22 TMS C14 IO88RSB2 A35 IO41NPB1 B23 TDO C15 IO84RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A33	IO47NSB1	B21	GNDQ		C13	VCCIB2
A35 IO41NPB1 B23 TDO C15 IO84RSB2 A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A34	VCC	B22	TMS		C14	IO88RSB2
A36 GBA2/IO41PPB1 B24 GDC0/IO58VDB1 C16 IO80RSB2	A35	IO41NPB1	B23	TDO		C15	IO84RSB2
	A36	GBA2/IO41PPB1	B24	GDC0/IO58VDB1]	C16	IO80RSB2

CS121 – Bottom View



Note: The die attach paddle center of the package is tied to ground (GND).

Note

For more information on package drawings, see PD3068: Package Mechanical Drawings.



	VQ100	,	VQ100	VQ100	
Pin Number	A3P125 Function	Pin Number	A3P125 Function	Pin Num	Der A3P125 Function
1	GND	37	VCC	73	GBA2/IO41RSB0
2	GAA2/IO67RSB1	38	GND	74	VMV0
3	IO68RSB1	39	VCCIB1	75	GNDQ
4	GAB2/IO69RSB1	40	IO87RSB1	76	GBA1/IO40RSB0
5	IO132RSB1	41	IO84RSB1	77	GBA0/IO39RSB0
6	GAC2/IO131RSB1	42	IO81RSB1	78	GBB1/IO38RSB0
7	IO130RSB1	43	IO75RSB1	79	GBB0/IO37RSB0
8	IO129RSB1	44	GDC2/IO72RSB1	80	GBC1/IO36RSB0
9	GND	45	GDB2/IO71RSB1	81	GBC0/IO35RSB0
10	GFB1/IO124RSB1	46	GDA2/IO70RSB1	82	IO32RSB0
11	GFB0/IO123RSB1	47	ТСК	83	IO28RSB0
12	VCOMPLF	48	TDI	84	IO25RSB0
13	GFA0/IO122RSB1	49	TMS	85	IO22RSB0
14	VCCPLF	50	VMV1	86	IO19RSB0
15	GFA1/IO121RSB1	51	GND	87	VCCIB0
16	GFA2/IO120RSB1	52	VPUMP	88	GND
17	VCC	53	NC	89	VCC
18	VCCIB1	54	TDO	90	IO15RSB0
19	GEC0/IO111RSB1	55	TRST	91	IO13RSB0
20	GEB1/IO110RSB1	56	VJTAG	92	IO11RSB0
21	GEB0/IO109RSB1	57	GDA1/IO65RSB0	93	IO09RSB0
22	GEA1/IO108RSB1	58	GDC0/IO62RSB0	94	IO07RSB0
23	GEA0/IO107RSB1	59	GDC1/IO61RSB0	95	GAC1/IO05RSB0
24	VMV1	60	GCC2/IO59RSB0	96	GAC0/IO04RSB0
25	GNDQ	61	GCB2/IO58RSB0	97	GAB1/IO03RSB0
26	GEA2/IO106RSB1	62	GCA0/IO56RSB0	98	GAB0/IO02RSB0
27	GEB2/IO105RSB1	63	GCA1/IO55RSB0	99	GAA1/IO01RSB0
28	GEC2/IO104RSB1	64	GCC0/IO52RSB0	100	GAA0/IO00RSB0
29	IO102RSB1	65	GCC1/IO51RSB0		
30	IO100RSB1	66	VCCIB0		
31	IO99RSB1	67	GND		
32	IO97RSB1	68	VCC		
33	IO96RSB1	69	IO47RSB0		
34	IO95RSB1	70	GBC2/IO45RSB0		
35	IO94RSB1	71	GBB2/IO43RSB0		
36	IO93RSB1	72	IO42RSB0		

Р	Q208	F	Q208	PQ208	
Pin Number	A3P400 Function	Pin Number	A3P400 Function	Pin Number	A3P400 Function
1	GND	37	IO141PSB3	73	IO112RSB2
2	GAA2/IO155UDB3	38	IO140PDB3	74	IO111RSB2
3	IO155VDB3	39	IO140NDB3	75	IO110RSB2
4	GAB2/IO154UDB3	40	VCCIB3	76	IO109RSB2
5	IO154VDB3	41	GND	77	IO108RSB2
6	GAC2/IO153UDB3	42	IO138PDB3	78	IO107RSB2
7	IO153VDB3	43	IO138NDB3	79	IO106RSB2
8	IO152UDB3	44	GEC1/IO137PDB3	80	IO104RSB2
9	IO152VDB3	45	GEC0/IO137NDB3	81	GND
10	IO151UDB3	46	GEB1/IO136PDB3	82	IO102RSB2
11	IO151VDB3	47	GEB0/IO136NDB3	83	IO101RSB2
12	IO150PDB3	48	GEA1/IO135PDB3	84	IO100RSB2
13	IO150NDB3	49	GEA0/IO135NDB3	85	IO99RSB2
14	IO149PDB3	50	VMV3	86	IO98RSB2
15	IO149NDB3	51	GNDQ	87	IO97RSB2
16	VCC	52	GND	88	VCC
17	GND	53	VMV2	89	VCCIB2
18	VCCIB3	54	NC	90	IO94RSB2
19	IO148PDB3	55	GEA2/IO134RSB2	91	IO92RSB2
20	IO148NDB3	56	GEB2/IO133RSB2	92	IO90RSB2
21	GFC1/IO147PDB3	57	GEC2/IO132RSB2	93	IO88RSB2
22	GFC0/IO147NDB3	58	IO131RSB2	94	IO86RSB2
23	GFB1/IO146PDB3	59	IO130RSB2	95	IO84RSB2
24	GFB0/IO146NDB3	60	IO129RSB2	96	GDC2/IO82RSB2
25	VCOMPLF	61	IO128RSB2	97	GND
26	GFA0/IO145NPB3	62	VCCIB2	98	GDB2/IO81RSB2
27	VCCPLF	63	IO125RSB2	99	GDA2/IO80RSB2
28	GFA1/IO145PPB3	64	IO123RSB2	100	GNDQ
29	GND	65	GND	101	тск
30	GFA2/IO144PDB3	66	IO121RSB2	102	TDI
31	IO144NDB3	67	IO119RSB2	103	TMS
32	GFB2/IO143PDB3	68	IO117RSB2	104	VMV2
33	IO143NDB3	69	IO115RSB2	105	GND
34	GFC2/IO142PDB3	70	IO113RSB2	106	VPUMP
35	IO142NDB3	71	VCC	107	NC
36	NC	72	VCCIB2	108	TDO

Microsemi

Package Pin Assignments

	FG144		FG144		FG144
Pin Number	A3P1000 Function	Pin Number	A3P1000 Function	Pin Number	A3P1000 Function
A1	GNDQ	D1	IO213PDB3	G1	GFA1/IO207PPB3
A2	VMV0	D2	IO213NDB3	G2	GND
A3	GAB0/IO02RSB0	D3	IO223NDB3	G3	VCCPLF
A4	GAB1/IO03RSB0	D4	GAA2/IO225PPB3	G4	GFA0/IO207NPB3
A5	IO10RSB0	D5	GAC0/IO04RSB0	G5	GND
A6	GND	D6	GAC1/IO05RSB0	G6	GND
A7	IO44RSB0	D7	GBC0/IO72RSB0	G7	GND
A8	VCC	D8	GBC1/IO73RSB0	G8	GDC1/IO111PPB1
A9	IO69RSB0	D9	GBB2/IO79PDB1	G9	IO96NDB1
A10	GBA0/IO76RSB0	D10	IO79NDB1	G10	GCC2/IO96PDB1
A11	GBA1/IO77RSB0	D11	IO80NPB1	G11	IO95NDB1
A12	GNDQ	D12	GCB1/IO92PPB1	G12	GCB2/IO95PDB1
B1	GAB2/IO224PDB3	E1	VCC	H1	VCC
B2	GND	E2	GFC0/IO209NDB3	H2	GFB2/IO205PDB3
B3	GAA0/IO00RSB0	E3	GFC1/IO209PDB3	H3	GFC2/IO204PSB3
B4	GAA1/IO01RSB0	E4	VCCIB3	H4	GEC1/IO190PDB3
B5	IO13RSB0	E5	IO225NPB3	H5	VCC
B6	IO26RSB0	E6	VCCIB0	H6	IO105PDB1
B7	IO35RSB0	E7	VCCIB0	H7	IO105NDB1
B8	IO60RSB0	E8	GCC1/IO91PDB1	H8	GDB2/IO115RSB2
B9	GBB0/IO74RSB0	E9	VCCIB1	H9	GDC0/IO111NPB1
B10	GBB1/IO75RSB0	E10	VCC	H10	VCCIB1
B11	GND	E11	GCA0/IO93NDB1	H11	IO101PSB1
B12	VMV1	E12	IO94NDB1	H12	VCC
C1	IO224NDB3	F1	GFB0/IO208NPB3	J1	GEB1/IO189PDB3
C2	GFA2/IO206PPB3	F2	VCOMPLF	J2	IO205NDB3
C3	GAC2/IO223PDB3	F3	GFB1/IO208PPB3	J3	VCCIB3
C4	VCC	F4	IO206NPB3	J4	GEC0/IO190NDB3
C5	IO16RSB0	F5	GND	J5	IO160RSB2
C6	IO29RSB0	F6	GND	J6	IO157RSB2
C7	IO32RSB0	F7	GND	J7	VCC
C8	IO63RSB0	F8	GCC0/IO91NDB1	J8	ТСК
C9	IO66RSB0	F9	GCB0/IO92NPB1	J9	GDA2/IO114RSB2
C10	GBA2/IO78PDB1	F10	GND	J10	TDO
C11	IO78NDB1	F11	GCA1/IO93PDB1	J11	GDA1/IO113PDB1
C12	GBC2/IO80PPB1	F12	GCA2/IO94PDB1	J12	GDB1/IO112PDB1

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Package Pin Assignments

	FG256		FG256	FG256	
Pin Number	A3P250 Function	Pin Number	A3P250 Function	Pin Number	A3P250 Function
G13	GCC1/IO48PPB1	K1	GFC2/IO105PDB3	M5	VMV3
G14	IO47NPB1	K2	IO107NPB3	M6	VCCIB2
G15	IO54PDB1	K3	IO104PPB3	M7	VCCIB2
G16	IO54NDB1	K4	NC	M8	NC
H1	GFB0/IO109NPB3	K5	VCCIB3	M9	IO74RSB2
H2	GFA0/IO108NDB3	K6	VCC	M10	VCCIB2
H3	GFB1/IO109PPB3	K7	GND	M11	VCCIB2
H4	VCOMPLF	K8	GND	M12	VMV2
H5	GFC0/IO110NPB3	K9	GND	M13	NC
H6	VCC	K10	GND	M14	GDB1/IO59UPB1
H7	GND	K11	VCC	M15	GDC1/IO58UDB1
H8	GND	K12	VCCIB1	M16	IO56NDB1
H9	GND	K13	IO52NPB1	N1	IO103NDB3
H10	GND	K14	IO55RSB1	N2	IO101PPB3
H11	VCC	K15	IO53NPB1	N3	GEC1/IO100PPB3
H12	GCC0/IO48NPB1	K16	IO51NDB1	N4	NC
H13	GCB1/IO49PPB1	L1	IO105NDB3	N5	GNDQ
H14	GCA0/IO50NPB1	L2	IO104NPB3	N6	GEA2/IO97RSB2
H15	NC	L3	NC	N7	IO86RSB2
H16	GCB0/IO49NPB1	L4	IO102RSB3	N8	IO82RSB2
J1	GFA2/IO107PPB3	L5	VCCIB3	N9	IO75RSB2
J2	GFA1/IO108PDB3	L6	GND	N10	IO69RSB2
J3	VCCPLF	L7	VCC	N11	IO64RSB2
J4	IO106NDB3	L8	VCC	N12	GNDQ
J5	GFB2/IO106PDB3	L9	VCC	N13	NC
J6	VCC	L10	VCC	N14	VJTAG
J7	GND	L11	GND	N15	GDC0/IO58VDB1
J8	GND	L12	VCCIB1	N16	GDA1/IO60UDB1
J9	GND	L13	GDB0/IO59VPB1	P1	GEB1/IO99PDB3
J10	GND	L14	IO57VDB1	P2	GEB0/IO99NDB3
J11	VCC	L15	IO57UDB1	P3	NC
J12	GCB2/IO52PPB1	L16	IO56PDB1	P4	NC
J13	GCA1/IO50PPB1	M1	IO103PDB3	P5	IO92RSB2
J14	GCC2/IO53PPB1	M2	NC	P6	IO89RSB2
J15	NC	M3	IO101NPB3	P7	IO85RSB2
J16	GCA2/IO51PDB1	M4	GEC0/IO100NPB3	P8	IO81RSB2



	FG256		FG256	FG256	
Pin Number	A3P600 Function	Pin Number	A3P600 Function	Pin Number	A3P600 Function
A1	GND	C5	GAC0/IO04RSB0	E9	IO31RSB0
A2	GAA0/IO00RSB0	C6	GAC1/IO05RSB0	E10	VCCIB0
A3	GAA1/IO01RSB0	C7	IO20RSB0	E11	VCCIB0
A4	GAB0/IO02RSB0	C8	IO24RSB0	E12	VMV1
A5	IO11RSB0	C9	IO33RSB0	E13	GBC2/IO62PDB1
A6	IO16RSB0	C10	IO39RSB0	E14	IO67PPB1
A7	IO18RSB0	C11	IO44RSB0	E15	IO64PPB1
A8	IO28RSB0	C12	GBC0/IO54RSB0	E16	IO66PDB1
A9	IO34RSB0	C13	IO51RSB0	F1	IO166NDB3
A10	IO37RSB0	C14	VMV0	F2	IO168NPB3
A11	IO41RSB0	C15	IO61NPB1	F3	IO167PPB3
A12	IO43RSB0	C16	IO63PDB1	F4	IO169PDB3
A13	GBB1/IO57RSB0	D1	IO171NDB3	F5	VCCIB3
A14	GBA0/IO58RSB0	D2	IO171PDB3	F6	GND
A15	GBA1/IO59RSB0	D3	GAC2/IO172PDB3	F7	VCC
A16	GND	D4	IO06RSB0	F8	VCC
B1	GAB2/IO173PDB3	D5	GNDQ	F9	VCC
B2	GAA2/IO174PDB3	D6	IO10RSB0	F10	VCC
B3	GNDQ	D7	IO19RSB0	F11	GND
B4	GAB1/IO03RSB0	D8	IO26RSB0	F12	VCCIB1
B5	IO13RSB0	D9	IO30RSB0	F13	IO62NDB1
B6	IO14RSB0	D10	IO40RSB0	F14	IO64NPB1
B7	IO21RSB0	D11	IO45RSB0	F15	IO65PPB1
B8	IO27RSB0	D12	GNDQ	F16	IO66NDB1
B9	IO32RSB0	D13	IO50RSB0	G1	IO165NDB3
B10	IO38RSB0	D14	GBB2/IO61PPB1	G2	IO165PDB3
B11	IO42RSB0	D15	IO53RSB0	G3	IO168PPB3
B12	GBC1/IO55RSB0	D16	IO63NDB1	G4	GFC1/IO164PPB3
B13	GBB0/IO56RSB0	E1	IO166PDB3	G5	VCCIB3
B14	IO52RSB0	E2	IO167NPB3	G6	VCC
B15	GBA2/IO60PDB1	E3	IO172NDB3	G7	GND
B16	IO60NDB1	E4	IO169NDB3	G8	GND
C1	IO173NDB3	E5	VMV0	G9	GND
C2	IO174NDB3	E6	VCCIB0	G10	GND
C3	VMV3	E7	VCCIB0	G11	VCC
C4	IO07RSB0	E8	IO25RSB0	G12	VCCIB1



Datasheet Information

Revision	Changes	Page
v2.0 (April 2007)	In the "Packaging Tables", Ambient was deleted.	ii
	The timing characteristics tables were updated.	N/A
	The "PLL Macro" section was updated to add information on the VCO and PLL outputs during power-up.	2-15
	The "PLL Macro" section was updated to include power-up information.	2-15
	Table 2-11 • ProASIC3 CCC/PLL Specification was updated.	2-29
	Figure 2-19 • Peak-to-Peak Jitter Definition is new.	2-18
	The "SRAM and FIFO" section was updated with operation and timing requirement information.	2-21
	The "RESET" section was updated with read and write information.	2-25
	The "RESET" section was updated with read and write information.	2-25
	The "Introduction" in the "Advanced I/Os" section was updated to include information on input and output buffers being disabled.	2-28
	PCI-X 3.3 V was added to Table 2-11 • VCCI Voltages and Compatible Standards.	2-29
	In the Table 2-15 • Levels of Hot-Swap Support, the ProASIC3 compliance descriptions were updated for levels 3 and 4.	2-34
	Table 2-43 • I/O Hot-Swap and 5 V Input Tolerance Capabilities in ProASIC3 Devices was updated.	2-64
	Notes 3, 4, and 5 were added to Table 2-17 \cdot Comparison Table for 5 V–Compliant Receiver Scheme. 5 x 52.72 was changed to 52.7 and the Maximum current was updated from 4 x 52.7 to 5 x 52.7.	2-40
	The "VCCPLF PLL Supply Voltage" section was updated.	2-50
	The "VPUMP Programming Supply Voltage" section was updated.	2-50
	The "GL Globals" section was updated to include information about direct input into quadrant clocks.	2-51
	V _{JTAG} was deleted from the "TCK Test Clock" section.	2-51
	In Table 2-22 • Recommended Tie-Off Values for the TCK and TRST Pins, TSK was changed to TCK in note 2. Note 3 was also updated.	2-51
	Ambient was deleted from Table 3-2 • Recommended Operating Conditions. VPUMP programming mode was changed from "3.0 to 3.6" to "3.15 to 3.45".	3-2
	Note 3 is new in Table 3-4 • Overshoot and Undershoot Limits (as measured on quiet I/Os)1.	3-2
	In EQ 3-2, 150 was changed to 110 and the result changed from 3.9 to 1.951.	3-5
	Table 3-6 • Temperature and Voltage Derating Factors for Timing Delays was updated.	3-6
	Table 3-5 • Package Thermal Resistivities was updated.	3-5
	Table 3-14 • Summary of Maximum and Minimum DC Input and Output Levels Applicable to Commercial and Industrial Conditions—Software Default Settings (Advanced) and Table 3-17 • Summary of Maximum and Minimum DC Input Levels Applicable to Commercial and Industrial Conditions (Standard Plus) were updated.	3-17 to 3- 17