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Understanding Embedded - FPGAs (Field Programmable Gate Array)

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	4224
Number of Logic Elements/Cells	-
Total RAM Bits	55296
Number of I/O	138
Number of Gates	250000
Voltage - Supply	1.425V ~ 1.575V
Mounting Type	Surface Mount
Operating Temperature	0°C ~ 70°C (TA)
Package / Case	256-LBGA
Supplier Device Package	256-FPBGA (17x17)
Purchase URL	https://www.e-xfl.com/product-detail/microchip-technology/ax250-fg256

Axcelerator Family Device Status

Axcelerator ® Devices	Status
AX125	Production
AX250	Production
AX500	Production
AX1000	Production
AX2000	Production

Temperature Grade Offerings

Package	AX125	AX250	AX500	AX1000	AX2000
PQ208	–	C, I, M	C, I, M	–	–
CQ208	–	M	M	–	–
CQ256	–	–	–	–	M
FG256	C, I	C, I, M	–	–	–
FG324	C, I	–	–	–	–
CQ352	–	M	M	M	M
FG484	–	C, I, M	C, I, M	C, I, M	–
CG624	–	–	–	M	M
FG676	–	–	C, I, M	C, I, M	–
BG729	–	–	–	C, I, M	–
FG896	–	–	–	C, I, M	C, I, M
FG1152	–	–	–	–	C, I, M

C = Commercial

I = Industrial

M = Military

Speed Grade and Temperature Grade Matrix

Temperature Grade	Std	–1	–2
C	✓	✓	✓
I	✓	✓	✓
M	✓	✓	–

C = Commercial

I = Industrial

M = Military

Packaging Data

Refer to the following documents located on the Microsemi SoC Products Group website for additional packaging information.

- Package Mechanical Drawings
- Package Thermal Characteristics and Weights
- Hermatic Package Mechanical Information

Contact your local Microsemi representative for device availability.

CG624	
AX2000 Function	Pin Number
Bank 0	
IO00NB0F0	D7*
IO00PB0F0	E7*
IO01NB0F0	G7
IO01PB0F0	G6
IO02NB0F0	B5
IO02PB0F0	B4
IO04PB0F0	C7
IO05NB0F0	F8
IO05PB0F0	F7
IO06NB0F0	H8
IO06PB0F0	H7
IO11NB0F0	J8
IO11PB0F0	J7
IO12PB0F1	B6
IO13NB0F1	E9*
IO13PB0F1	D8*
IO15NB0F1	C9
IO15PB0F1	C8
IO16NB0F1	A5
IO16PB0F1	A4
IO17NB0F1	D10
IO17PB0F1	D9
IO18NB0F1	A7
IO18PB0F1	A6
IO19NB0F1	G9
IO19PB0F1	G8
IO20PB0F1	B7
IO23NB0F2	F10
IO23PB0F2	F9
IO26NB0F2	C11*
IO26PB0F2	B8*

Note: *Not routed on the same package layer and to adjacent LGA pads as its differential pair complement. Recommended to be used as a single-ended I/O.

CG624	
AX2000 Function	Pin Number
IO27NB0F2	H10
IO27PB0F2	H9
IO28NB0F2	A9
IO28PB0F2	B9
IO30NB0F2	B11
IO30PB0F2	B10
IO31NB0F2	E11
IO31PB0F2	F11
IO33NB0F2	D12
IO33PB0F2	D11
IO34NB0F3	A11
IO34PB0F3	A10
IO37NB0F3	J13
IO37PB0F3	K13
IO38NB0F3	H11
IO38PB0F3	G11
IO40PB0F3	B12
IO41NB0F3/HCLKAN	G13
IO41PB0F3/HCLKAP	G12
IO42NB0F3/HCLKBN	C13
IO42PB0F3/HCLKBP	C12
Bank 1	
IO43NB1F4/HCLKCN	G15
IO43PB1F4/HCLKCP	G14
IO44NB1F4/HCLKDN	B14
IO44PB1F4/HCLKDP	B13
IO45NB1F4	H13
IO47NB1F4	D14
IO47PB1F4	C14
IO48NB1F4	A16
IO48PB1F4	A15
IO49PB1F4	H15

Note: *Not routed on the same package layer and to adjacent LGA pads as its differential pair complement. Recommended to be used as a single-ended I/O.

CG624	
AX2000 Function	Pin Number
IO51NB1F4	E15
IO51PB1F4	F15
IO52NB1F4	A17
IO55NB1F5	G16
IO55PB1F5	H16
IO56NB1F5	A20
IO56PB1F5	A19
IO57NB1F5	D16
IO57PB1F5	D15
IO58NB1F5	A22
IO58PB1F5	A21
IO59NB1F5	F16
IO61NB1F5	G17
IO61PB1F5	H17
IO62NB1F5	B17
IO62PB1F5	B16
IO63NB1F5	H18
IO65NB1F6	C17
IO66PB1F6	B18
IO67NB1F6	J18
IO67PB1F6	J19
IO68NB1F6	B20
IO68PB1F6	B19
IO69NB1F6	E17
IO69PB1F6	F17
IO70NB1F6	B22
IO70PB1F6	B21
IO71PB1F6	G18
IO73NB1F6	G19
IO74NB1F6	C19
IO74PB1F6	C18
IO75NB1F6	D18

Note: *Not routed on the same package layer and to adjacent LGA pads as its differential pair complement. Recommended to be used as a single-ended I/O.