

# T4F81C2X Datasheet



DiGi Electronics Part Number	T4F81C2X-DG
Manufacturer	<a href="#">Efinix, Inc.</a>
Manufacturer Product Number	T4F81C2X
Description	IC FPGA TRION T4 55 I/O 81FBGA
Detailed Description	Trion® Field Programmable Gate Array (FPGA) IC 55 78643 3888 81-VFBGA

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## Purchase and inquiry

Manufacturer Product Number:

T4F81C2X

Series:

Trion®

DiGi-Electronics Programmable:

Not Verified

Total RAM Bits:

78643

Voltage - Supply:

1.05V ~ 1.15V

Operating Temperature:

-40°C ~ 100°C (TJ)

Supplier Device Package:

81-FBGA (5x5)

Manufacturer:

Efinix, Inc.

Product Status:

Active

Number of Logic Elements/Cells:

3888

Number of I/O:

55

Mounting Type:

Surface Mount

Package / Case:

81-VFBGA

Base Product Number:

T4F81

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

Moisture Sensitivity Level (MSL):

3 (168 Hours)



# Trion® FPGA Selector Guide



4K to 120K  
Logic Elements



5 Kb Embedded  
RAM Blocks



18 x 18  
Multipliers



PLLs



GPIO



LVDS



MIPI CSI-2  
& D-PHY



DDR DRAM  
Controller & PHY



SPI & JTAG  
Configuration

## Trion Ordering Codes

FPGA	LEs	RAM (kbits)	RAM Blocks (5 Kb)	Multipliers	Package	Pins	GPIO	PLLs	Oscillator	LVDS TX Pairs	LVDS RX Pairs	MIPI TX	MIPI RX	DDR	Temperature	Speed Grade	Ordering Code			
T4	3,888	76.8	15	4	FBGA	49	33	1	1	-	-	-	-	-	C	2	T4F49C2			
						81	55	1	1	-	-	-	-	-	I	2	T4F49I2			
					FBGA	49	33	1	1	-	-	-	-	-	-	-	-	C	2	T4F81C2
						81	55	1	1	-	-	-	-	-	-	-	-	I	2	T4F81I2
T8	7,384	122.88	24	8	FBGA	49	33	1	1	-	-	-	-	-	C	2	T8F49C2			
						81	55	1	1	-	-	-	-	-	I	2	T8F49I2			
					FBGA	49	33	1	1	-	-	-	-	-	-	-	-	C	2	T8F81C2
						81	55	1	1	-	-	-	-	-	-	-	-	I	2	T8F81I2
					LQFP	144	97	5	-	6	6	-	-	-	-	-	-	C	3, 4	T8Q144C3/4
						144	97	5	-	6	6	-	-	-	-	-	-	I	4	T8Q144I4
T13	12,828	727.04	142	24	FBGA	169	73	5	-	8	12	2	2	-	C	3, 4	T13F169C3/4			
						169	73	5	-	8	12	2	2	-	I	4	T13F169I4			
						169	73	5	-	8	12	2	2	-	Q	4	T13F169Q4			
					FBGA	256	195	5	-	13	13	-	-	-	-	-	-	C	3, 4	T13F256C3/4
						256	195	5	-	13	13	-	-	-	-	-	-	I	4	T13F256I4
						256	195	5	-	13	13	-	-	-	-	-	-	Q	4	T13F256Q4
T20	19,728	1,044.48	204	36	WLCSP	80	33	3	-	-	-	1	1	-	I	4	T20W80I4			
						80	33	3	-	-	-	1	1	-	I	4	T20W80I4			
					LQFP	144	97	5	-	6	6	-	-	-	-	-	-	C	3, 4	T20Q144C3/4
						144	97	5	-	6	6	-	-	-	-	-	-	I	4	T20Q144I4
					FBGA	169	73	5	-	8	12	2	2	-	-	-	-	C	3, 4	T20F169C3/4
						169	73	5	-	8	12	2	2	-	-	-	-	I	4	T20F169I4
						169	73	5	-	8	12	2	2	-	-	-	-	Q	4	T20F169Q4
						169	73	5	-	8	12	2	2	-	-	-	-	C	3, 4	T20F256C3/4
					FBGA	256	195	5	-	13	13	-	-	-	-	-	-	I	4	T20F256I4
						256	195	5	-	13	13	-	-	-	-	-	-	Q	4	T20F256Q4
						324	130	7	-	20	26	2	2	x8, x16	-	-	-	C	3, 4	T20F324C3/4
						324	130	7	-	20	26	2	2	x8, x16	-	-	-	I	4	T20F324I4
FBGA	400	230	7	-	20	26	-	-	x8, x16	-	-	-	C	3, 4	T20F400C3/4					
	400	230	7	-	20	26	-	-	x8, x16	-	-	-	I	4	T20F400I4					

Trion FPGA Selector Guide

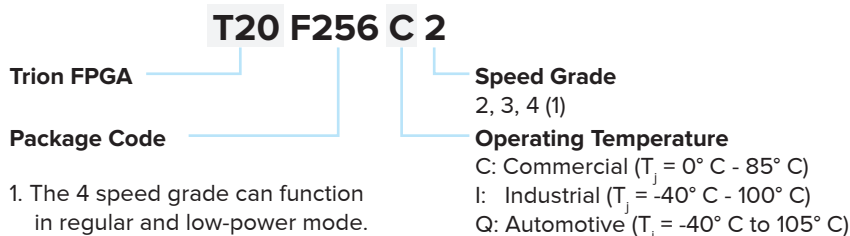
FPGA	LEs	RAM (kbits)	RAM Blocks (5 Kb)	Multipliers	Package	Pins	GPIO	PLLs	Oscillator	LVDS TX Pairs	LVDS RX Pairs	MIPI TX	MIPI RX	DDR	Temperature	Speed Grade	Ordering Code
T35	31,680	1,475	288	120	FBGA	324	130	7	-	20	26	2	2	x8, x16	C	3, 4	T35F324C3/4
															I	4	T35F324I4
					FBGA	400	230	7	-	20	26	-	-	x8, x16	C	3, 4	T35F400C3/4
															I	4	T35F400I4
T55	54,195	2,765	540	150	FBGA	324	130	7	-	20	26	2	2	x8, x16	C	3, 4	T55F324C3/4
															I	4	T55F324I4
					FBGA	484	256	8	-	40	40	-	-	x16/x32	C	3, 4	T55F484C3/4
															I	4	T55F484I4
					FBGA	576	278	8	-	52	52	3	3	x16/x32	C	3, 4	T55F576C3/4
															I	4	T55F576I4
T85	84,096	4,055	792	240	FBGA	324	130	7	-	20	26	2	2	x8, x16	C	3, 4	T85F324C3/4
															I	4	T85F324I4
					FBGA	484	256	8	-	40	40	-	-	x16/x32	C	3, 4	T85F484C3/4
															I	4	T85F484I4
					FBGA	576	278	8	-	52	52	3	3	x16/x32	C	3, 4	T85F576C3/4
															I	4	T85F576I4
T120	112,128	5,407	1,056	320	FBGA	324	130	7	-	20	26	2	2	x8, x16	C	3, 4	T120F324C3/4
															I	4	T120F324I4
					FBGA	484	256	8	-	40	40	-	-	x16/x32	C	3, 4	T120F484C3/4
															I	4	T120F484I4
					FBGA	576	278	8	-	52	52	3	3	x16/x32	C	3, 4	T120F576C3/4
															I	4	T120F576I4

Package Dimensions

Package	Pitch	Dimensions (mm)
49-ball FBGA	0.4	3x3
80-ball WLCSP	0.4	3.6x4.5
81-ball FBGA	0.5	5x5
144-pin LQFP	0.5	20x20

Package	Pitch	Dimensions (mm)
169-ball FBGA	0.65	9x9
324-ball FBGA	0.65	12x12
576-ball FBGA	0.65	16x16

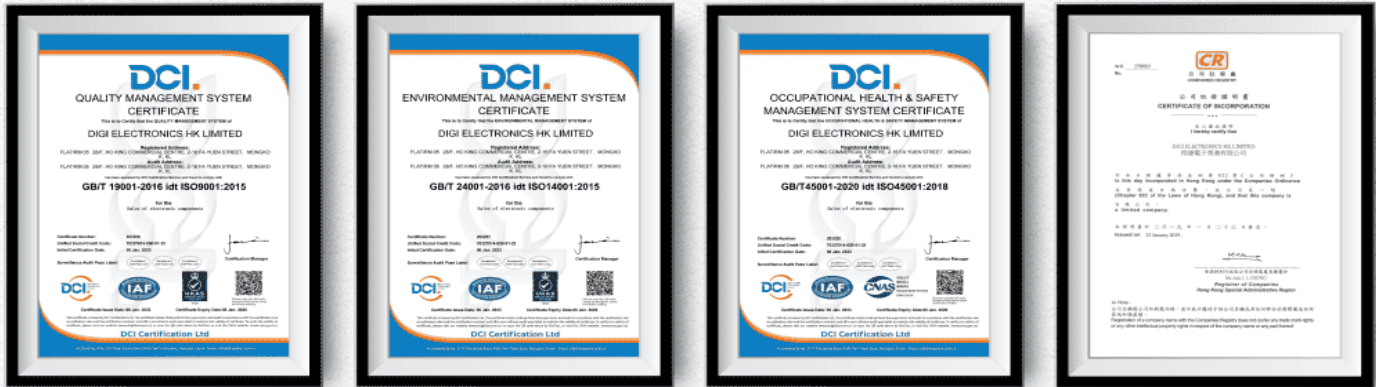
Package	Pitch	Dimensions (mm)
256-ball FBGA	0.8	13x13
400-ball FBGA	0.8	16x16
484-ball FBGA	0.8	18x18



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