TI Power Reference Design for
Xilinx® Kintex®-7

TEXAS INSTRUMENTS

Xilinx Kintex-7 FPGA KC705 Evaluation Kit

These links will redirect you to Xilinx's website where you can download the design file.

- ## Schematic for KC705

  link
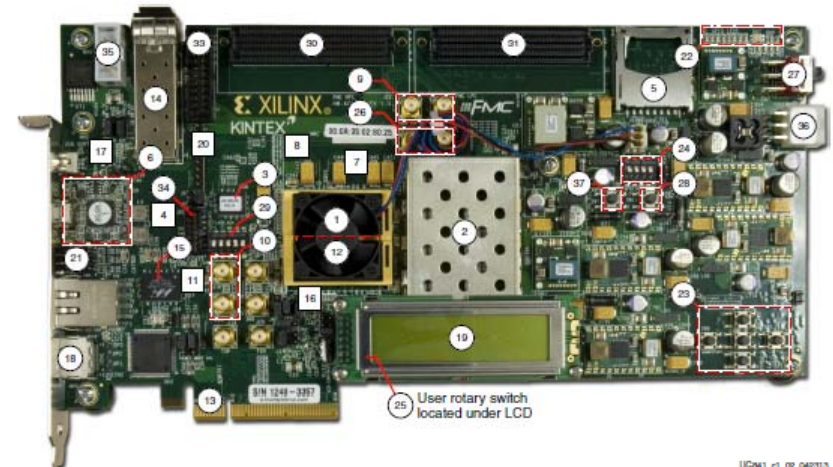
- ## BOM for KC705

  link

- ## User Guide for KC705

  link

- ## Power Tree for KC705
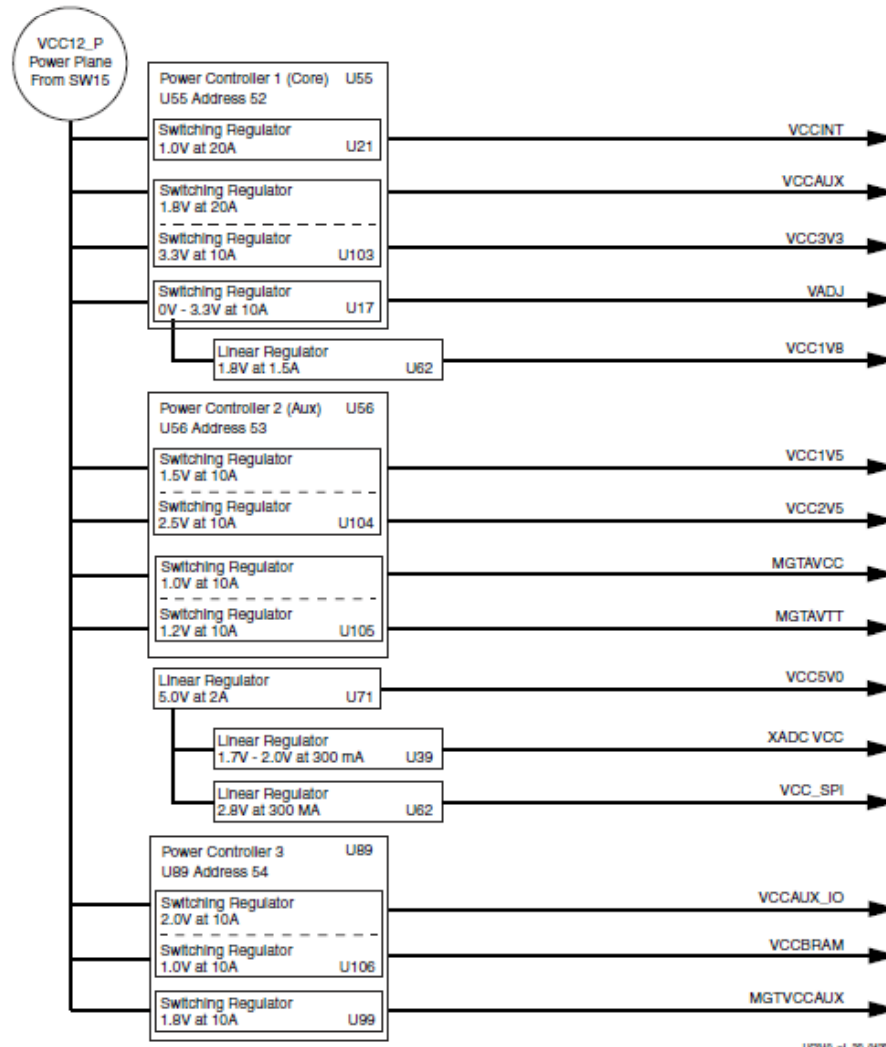
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- ## Gerber Files for KC705

  link

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VCC12_P Power Plane From SW15

Power Controller 1 (Core)   U55
U55 Address 52

Switching Regulator 1.0V at 20A U21	→	VCCINT
Switching Regulator 1.8V at 20A	→	VCCAUX
Switching Regulator 3.3V at 10A U103	→	VCC3V3
Switching Regulator 0V - 3.3V at 10A U17	→	VADJ
Linear Regulator 1.8V at 1.5A U62	→	VCC1V8

Power Controller 2 (Aux)   U56
U56 Address 53

Switching Regulator 1.5V at 10A	→	VCC1V5
Switching Regulator 2.5V at 10A U104	→	VCC2V5
Switching Regulator 1.0V at 10A	→	MGTAVCC
Switching Regulator 1.2V at 10A U105	→	MGTAVTT
Linear Regulator 5.0V at 2A U71	→	VCC5V0
Linear Regulator 1.7V - 2.0V at 300 mA U39	→	XADC VCC
Linear Regulator 2.8V at 300 MA U62	→	VCC_SPI

Power Controller 3   U89
U89 Address 54

Switching Regulator 2.0V at 10A	→	VCCAUX_IO
Switching Regulator 1.0V at 10A U106	→	VCCBRAM
Switching Regulator 1.8V at 10A U99	→	MGTVCCAUX

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KC705 Evaluation Kit Power Tree - 2

Device Type	Reference Designator	Description	Power Rail Net Name	Power Rail Voltage	Schematic Page
Core voltage controller and regulators					
UCD9248PFC[1]	U55	PMBus Controller (Addr = 52)			36
PTD08A020W	U21	Adjustable switching regulator 20A, 0.6V to 3.6V	VCCINT_FPGA	1.00V	37
PTD08D021W (V_OUT A)	U103	Adjustable switching regulator dual 10A, 0.6V to 3.6V	VCCAUX	1.80V	38
PTD08D021W (V_OUT B)		Adjustable switching regulator dual 10A, 0.6V to 3.6V	VCC3V3	3.30V	38
PTD08A010W	U17	Adjustable switching regulator 10A, 0.6V to 3.6V	VCC_ADJ	0-3.30V	39
Auxiliary voltage controller and regulators					
UCD9248PFC[2]	U56	PMBus Controller (Addr = 53)			40
PTD08D021W (V_OUT A)	U104	Adjustable switching regulator dual 10A, 0.6V to 3.6V	VCC2V5_FPGA	2.50V	41
PTD08D021W (V_OUT B)		Adjustable switching regulator dual 10A, 0.6V to 3.6V	VCC1V5_FPGA	1.50V	41
PTD08D021W (V_OUT A)	U105	Adjustable switching regulator dual 10A, 0.6V to 3.6V	MGTAVCC	1.00V	42
PTD08D021W (V_OUT B)		Adjustable switching regulator dual 10A, 0.6V to 3.6V	MGTAVTT	1.20V	42
UCD9248PFC[3]	U89	PMBus Controller (Addr = 54)			43
PTD08D021W (V_OUT A)	U106	Dual 10A 0.6V - 3.6V Adj. Switching Regulator	VCCAUX_IO	2.00V	44
PTD08D021W (V_OUT B)		Dual 10A 0.6V - 3.6V Adj. Switching Regulator	VCCBRAM	1.00V	44
PTD08A010W	U99	10A 0.6V - 3.6V Adj. Switching Regulator	MGTVCCAUX	1.80V	45
Linear regulators					
LMZ12002	U71	Fixed Linear Regulator 2A	VCC5V0	5.00V	46
TL1962ADC	U62	Fixed Linear Regulator, 1.5A	VCC1V8	1.80V	46
ADP123	U17	Fixed Linear Regulator, 300mA	VCC_SPI	2.80V	46
ADP123	U18	Fixed Linear Regulator, 300mA	XADC_VCC	1.80V	31
TPS51200DR	U33	Tracking Regulator, 3A	VTTDDR	0.75V	46

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