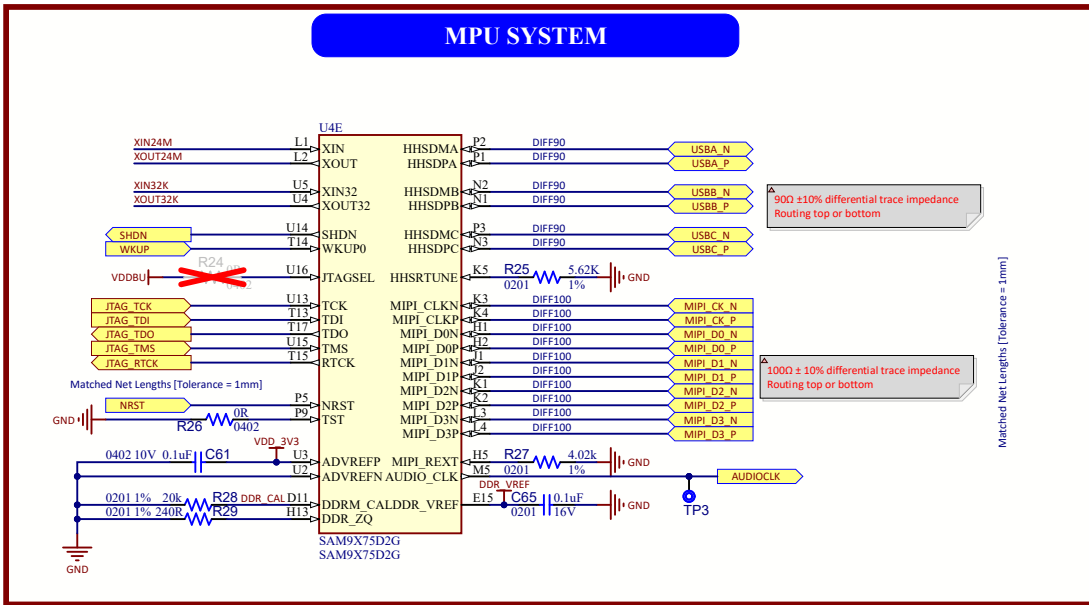
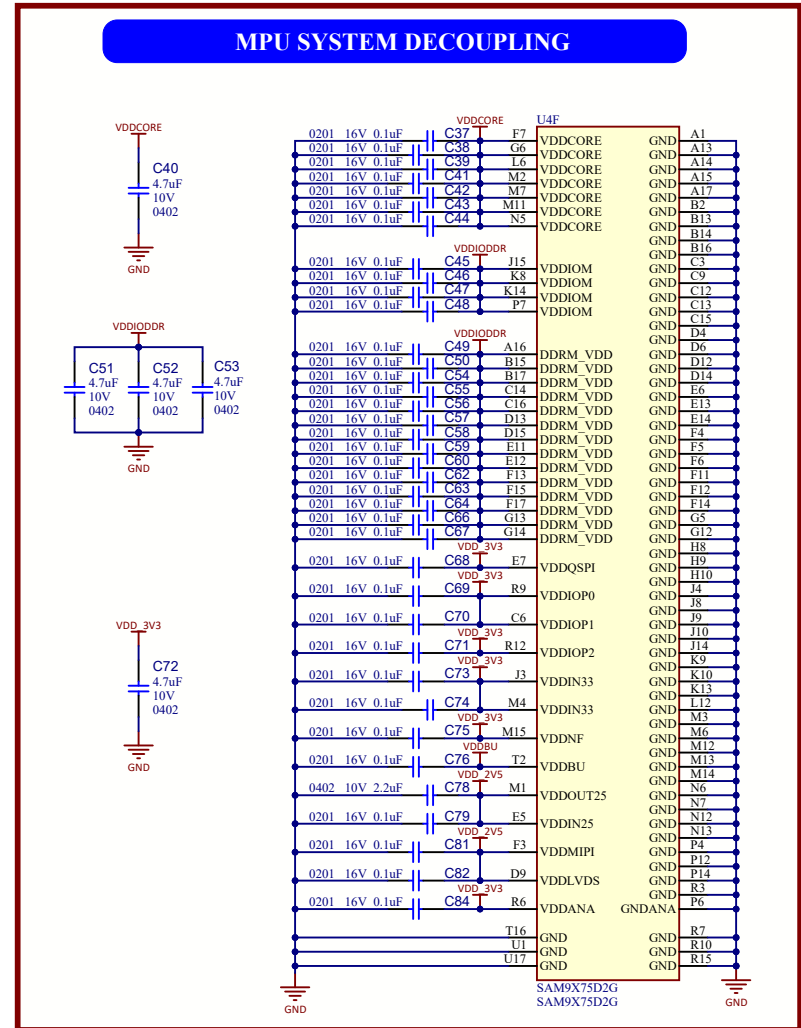


MPU System

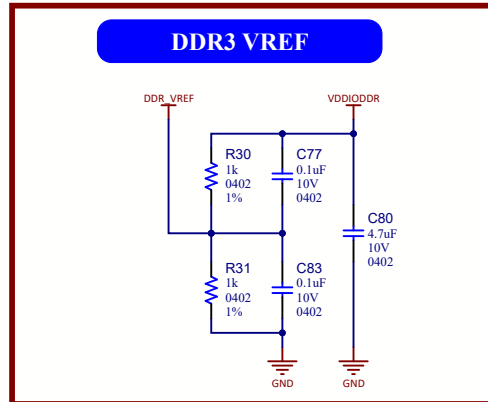
MPU SYSTEM



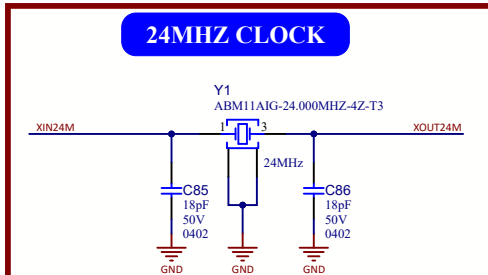
MPU SYSTEM DECOUPLING



DDR3 VREF



24MHZ CLOCK



Y1, 24MHz Crystal datasheet (ABM11AIG-24.000MHZ-4Z-T3):

- Frequency: 24.000MHz
- Accuracy: ±30ppm
- max ESR: 80Ω
- CLcrystal: 10pF
- Cshunt: <2pF

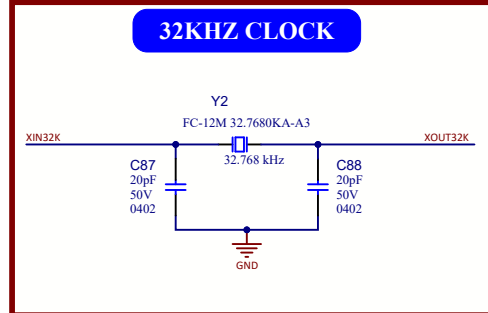
SAM9X75 datasheet:

- Cpara: 1pF
- f0: 24MHz
- CLcrystal: between 6-12.5pF
- Rs: <100Ω
- Cshunt <3pF

Cpcb: 1pF (estimate)

CLext = 2x (CLcrystal - Cpara - Cpcb/2) = 2x (10 - 1 - 0.5) = 17pF 18pF

32KHZ CLOCK



Y2, 32.768kHz Crystal datasheet (FC-12M 32.7680KA-A3):

- Accuracy: ±20ppm
- max ESR: 90kΩ
- CLcrystal: 12.5pF
- Cshunt: Typ 1.3pF
- dL <0.5uW

SAM9X75 datasheet:

- Cpara: 2pF
- f0: 32.768kHz
- CLcrystal: between 6-12.5pF
- Rs: <90kΩ
- Cshunt: between 0.6-2pF
- Pon min 0.2uW

Cpcb: 1pF (estimate)

CLext32k = 2x (CLcrystal - Cpara - Cpcb/2) = 2x (12.5 - 2 - 0.5) = 20pF

Project Owner: M18315		
PCB Layout Contact: M18315		
PartNumber: 02-01012	Project Title SAM9X75-Curiosity Main Board	Variant: Standard
Sheet Title MPU System		
Size A3	SCH #: 02-01012	Rev: 5
	PCB #: 04-12082	Rev: 5
File: 03 - MPU System.SchDoc		Date: 4/26/2024
		Sheet 4 of 19
		Altium