

DDR4 - 2400 is working with 1:2 Frequency Ratio Mode Considerations(IMX8MRRM.pdf 9.2.2.4.1). 2133 is preferred for task with low volume memory usage for receiving higher performance.
 MT40A256M16 with 2133 and 4GBit for example

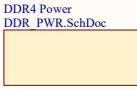
- 2pcs x16 DRAM routed in T-topology is recommended to achieve total 2GB density. When doing Topology routing, it is recommended to keep the propagation delay of each branch less than 150ps (about 900 mil in length), with no larger than 10ps difference between the two branches. In this case, VTT termination can be eliminated to ease routing and save BOM cost. CK should be routed with propagation delay 100ps larger than that of Addr/Cmd/Ctrl DQ/DMI signal traces must refer to solid GND plane only. Addr/Cmd/Ctrl signal traces can refer to GND plane only or GND+VDDQ plane (when routed as strip line). Referring to VDDQ plane only is not allowed
- Keep edge-to-edge spacing of high-speed signal traces no less than 1.5 times the trace width to minimize trace crosstalk
- To minimize via crosstalk, make sure that the number of vias on each point-to-point signal is no more than 2. For T-topology signal, only 1 via at transmitter, 1 at T-junction, 1 at each receiver is allowed. Place at least one ground stitching via within 50 mils of signal via when switching reference planes to provide continuous return path and reduce crosstalk. If it is not possible to place enough ground stitching vias due to space limitation, try to make the length that the signal actually travels on the via as short as possible
- CLK and DQS signal can be routed on different layers with DQ/CA signals to ease routing. When doing this, keep no less than 5 times trace width spacing from other signals. In general, the 2pcs DDR4 DRAM should be placed 300 mils away from each other, with 150 mils from the i.MX 8M Mini. Refer to IMX8MHDG.pdf page 23 for traces length matching.

Pin swap available in DQ0-DQ7 and DQ8-DQ15.

Pin swap available in DQ16-DQ23 and DQ24-DQ31.

DRAM DQ16 - 31 can be used only with iMX8 Mini, leave this pin open with Nano MPU. Do not forget about U6.

All Diffpair impedance 85 Ohm. Place CK terminator next to T-junction.



Title			Linux Board DDR		
	Project	Linux Board		Company	DMC
Date:	2022-12-21	Sheet:	6		
File:	DDR.SchDoc	Author:	*		