Rapidus Accelerator known issues, rev. 2. May. 2021

I. Prerequisities to pay attention to (in the order of importance)

1) Rapidus is a PBI device occupying ID #0 of the PBI bus. If using other PBI devices, please make sure that there are no conflicting ID settings between any of them.
2) When using additional extensions and/or PBI devices, use a power supply of at least 5V/2A.

I. Issues during booting the Rapidus FPGA core

Synopsis	Symptoms	Direct cause	Resolution
Cannot boot the core at all	Computer hangs during booting the core	Problems with access to the ROM memory containing the core and/or the booting code	The connection of the board with the Atari motherboard is loose, use precision sockets
A 16k cartridge causes Rapidus boot to hang	Core boots fine except when a cartridge is present	A design bug in the booting code, which assumes RAM at $8000-$9FFF	Update the booter (FLND6502) to a newer version

II. Issues in the FPGA core 6S9054E (known as „054E”)

Synopsis	Symptoms	Direct cause	Resolution
SD-RAM cache does not work correctly	Intermittent problems with programs loaded to the High RAM	Bits flipping in the cache	Disable SD-RAM cache in Rapidus Configuration Menu.
Double NMIs	RTCLOK intermittently incremented by more than 1 at a time	Unclear (glitch on the NMI line within short time span after the NMI signal?)	None. The problem only occurs when RAM #0 is set to „Fast rd/wr” in the Config.
VBXE MEMAC A and MEMAC B windows cannot overlap	S_VBXE.SYS crash after OPEN #iocb,3,12,”S2:”	A bug in Rapidus MMU.	Set RAM #1 to „No speedup”.

III. Other issues

Synopsis	Symptoms	Direct cause	Resolution
Problems in the presence of Ultimate 1 MB expansion board, reported by some users	Instabilities reportedly observed on U1MB-expanded Ataris even when the Rapidus board is set into „Classic” mode (i.e. idle state)	Unknown, probably of electrical nature (excessive bus capacitance, insufficient voltage level, bad contact of either board in the sockets have been hypothetized)	If using precision sockets does not help, remove either board.
Incorrect RESET signal handling in 6502 mode, when the core was not loaded	Instabilities after pressing the Reset key, being observed when the initialization of the Rapidus board was physically prevented by puling the three wire cable off its connector before powering up the computer	ROM collision on pages $D8-$DF	Do not pull the cable off its connector. Only the GND signal may be safely disconnected in order to block the board’s initialization.
Stability issues in turbo mode depending on temperature	Issues occurring in turbo mode either when the computer is powered on cold, and ceasing to occur when it warms up; or conversely, stable operation when the computer is cold with issues starting to occur when it warms up	Bad 6502 CPU, changing its characteristics when warming up (the „Mexico” type seems to be particularly susceptible)	Replace the 6502 („NCR” may be the recommended type)