Bus request is handled by Pico1
Pico1 requests PSRAM data via Pico2 (PIO on both sides)

Pico2 chooses the correct PSRAM CS via demux chip
Extra CS pin to handle Pico1<->Pico2 talk (WiFi,SDCard)

SRAM is accessed from Pico1 internal SRAM
SRAM is stored on 16MB Flash and/or SDCard via Pico2

Cart/Pico1 can request data from WiFi and/or SDCard

Pico2 can initiate WiFi stuff
WiFi module can load ROMs from network to SDCard
WiFi module can save SRAM saves to network

---------- Open questions

USB Debugging? Doable or does it mess up irq?
Both Picos need to be very responsive.

WiFi access while game is running:
Problematic, since accesses may happen at any time.
Maybe possible between ALEH/ALEL signals go high after READ

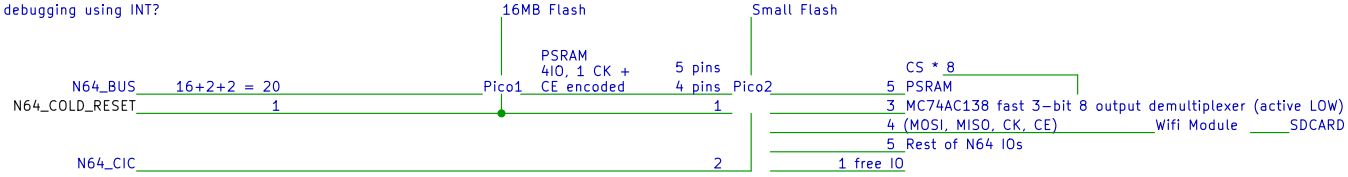
Debug/Print via WiFi?

Real debugging using INT?

BOM: @ qty 1 (will be cheaper when producing 100x +)
2x RP2040 = $2
WiFi Module (ESP32) = $3
MC74AC138 = $1
SDCard slot = $0.5
4 x LY68L6400SLIT = $11
USB conn. = $0.5
SPI Flash (16MB) = $1.1 W25Q128JVSIQ
SPI Flash (2MB) = $0.5 W25Q16JVSSIQ
Total 2+3+1+0.5+11+0.5+1.1+0.5 = $19.6

Customer price = 3 * BOM = $58.8

Pico SRAM = 264 kB
Let's use 128kB dedicated



Pico1 Pin Count = 20+1+5+4
Pico2 Pin Count = 5+4+1+2+5+3+4+5 = 29

PSRAM = 4 I/O + CLK
CE = 1 per chip

CE demux 3 bit -> 8 CE

Alternative demux
sn74lvc138a-q1

Sheet: /Concept1/
File: Concept1.kicad_sch

Title:

Size: A4 | Date: | **Rev:**
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