

Pulsar/SVT

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# Intro

- Few slides:
  - Base ideas
  - Want to discuss and get feedback
- Pulsar:
  - Already “SVT-compliant”
  - Lots of logic, connectivity and memory
- Two problems:
  - More versatile RoadGhostBusting
  - Possible replacement for aged/less flexible components

# Three Scenarios...

- **Minimal (RGB):**

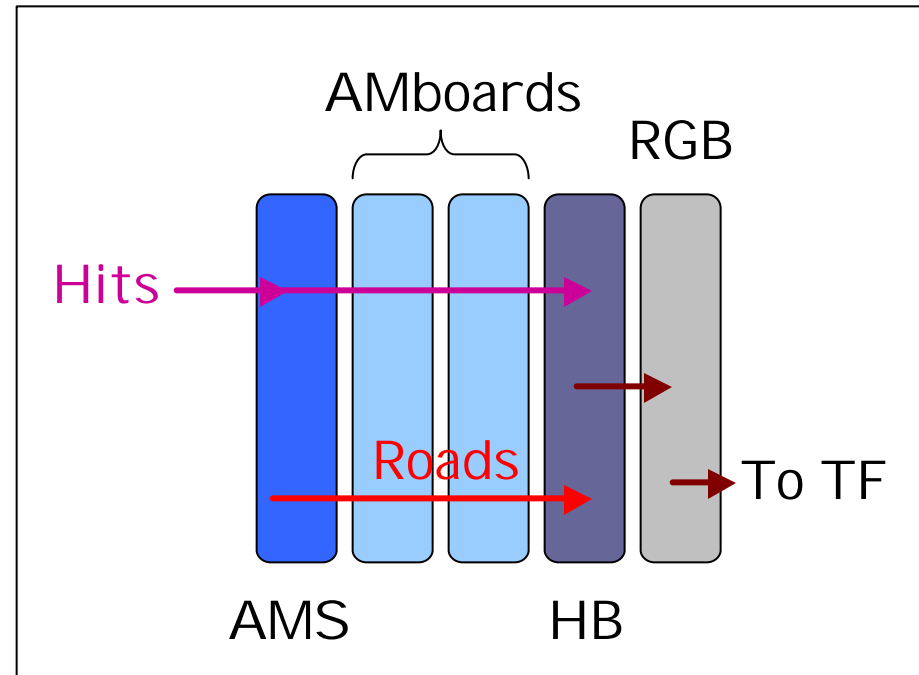
- Just replace RoadGhostBuster with something more powerful

- **Intermediate (HB+RGB):**

- RGB already requires some duplication of HB logic
- HB is "slow" and "old"

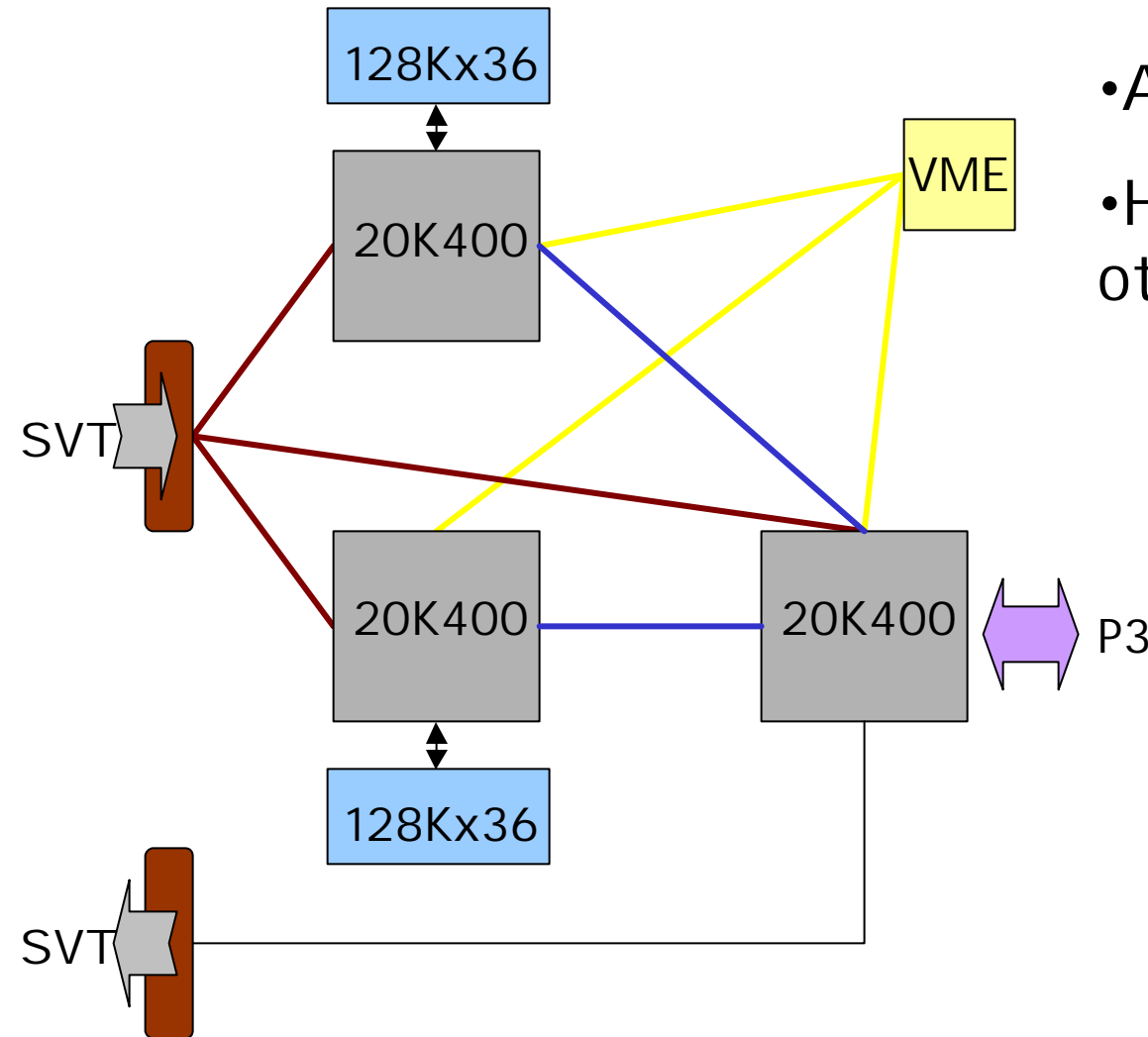
- **Ludicrous (AMS+HB+RGB):**

- AMS could use some more spares
- It would be nice to make all the SVT boards aware of a little more of what's happening around (CDF signals/L1)



# Is it powerful enough?

Let's take the most complicated scenario: AMS+HB+RGB



- AMS+Glue on the P3 end
- HB+RGB on one of the other two

✓SVT I/O handling

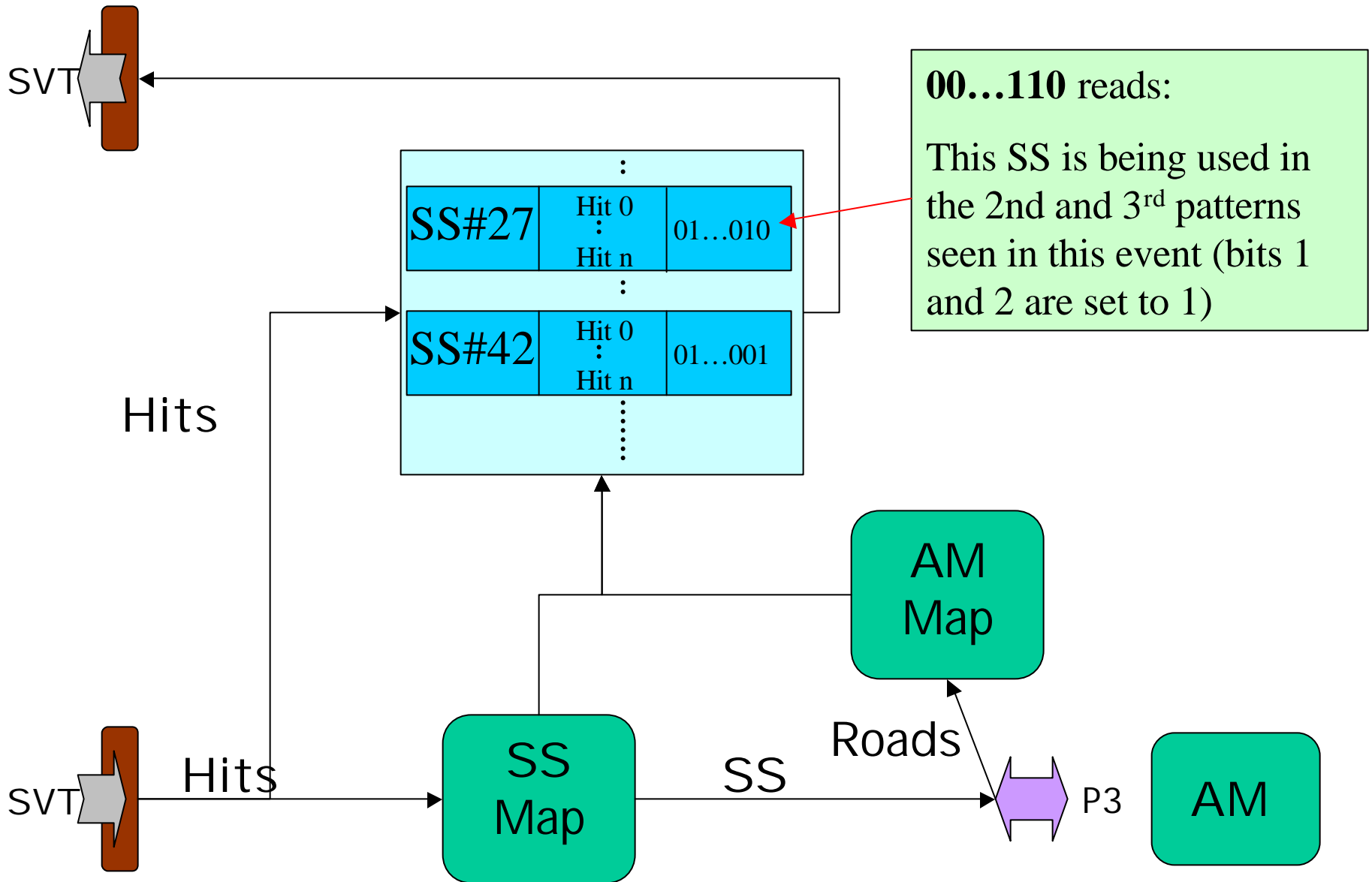
✓Logic flexibility

✓I/O Lines widths/interconnection

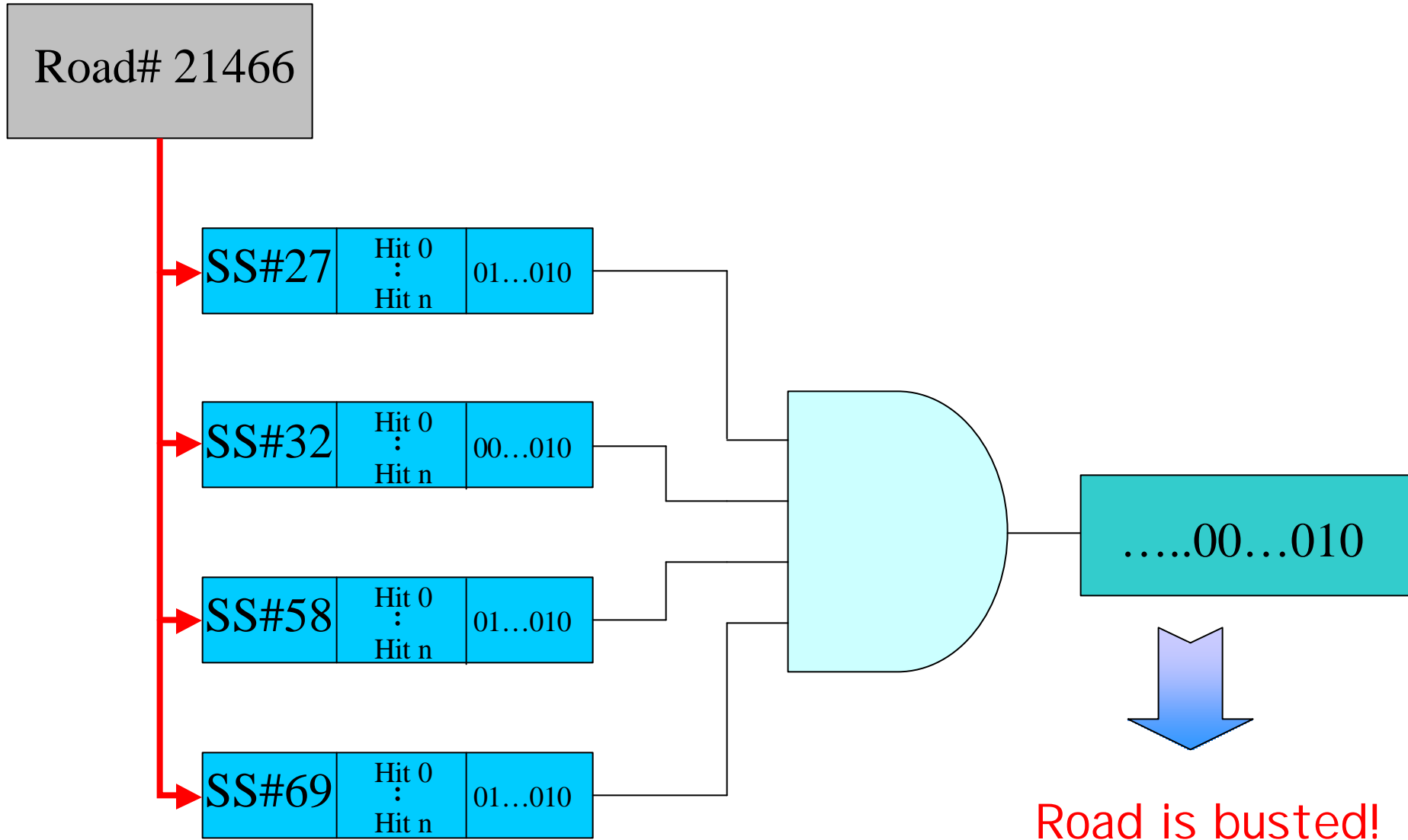
✓P3 Pinout

☐Memory?

# Data Flow & Memories...



# Poor Man's Road Busting



# Memory?

- Bad news:
  - not enough in current design
- Need a lot:

O(68Mb)



SS Map (hits→SS)	128Kx16	4Mb
AM Map (roads→SS)	1Mx16	16Mb
HLM	64Kx24	6Mb
GhostBusting "flags"	64Kx72	18Mb
Spy	128Kx24x2	24Mb

- Good news:
  - "Open design" with lot of I/O towards mezzanine cards (4)
  - Static ram is extremely cheap! O(10\$/16Mb)

# Conclusions

- Pulsar is extremely versatile
- Can follow SVT evolution
- Could be introduced gradually (I .e. RGB only first)
- Even AMS+HB+RGB seems feasible
- Little hardware work required
- Need a lot of feedback/suggestions