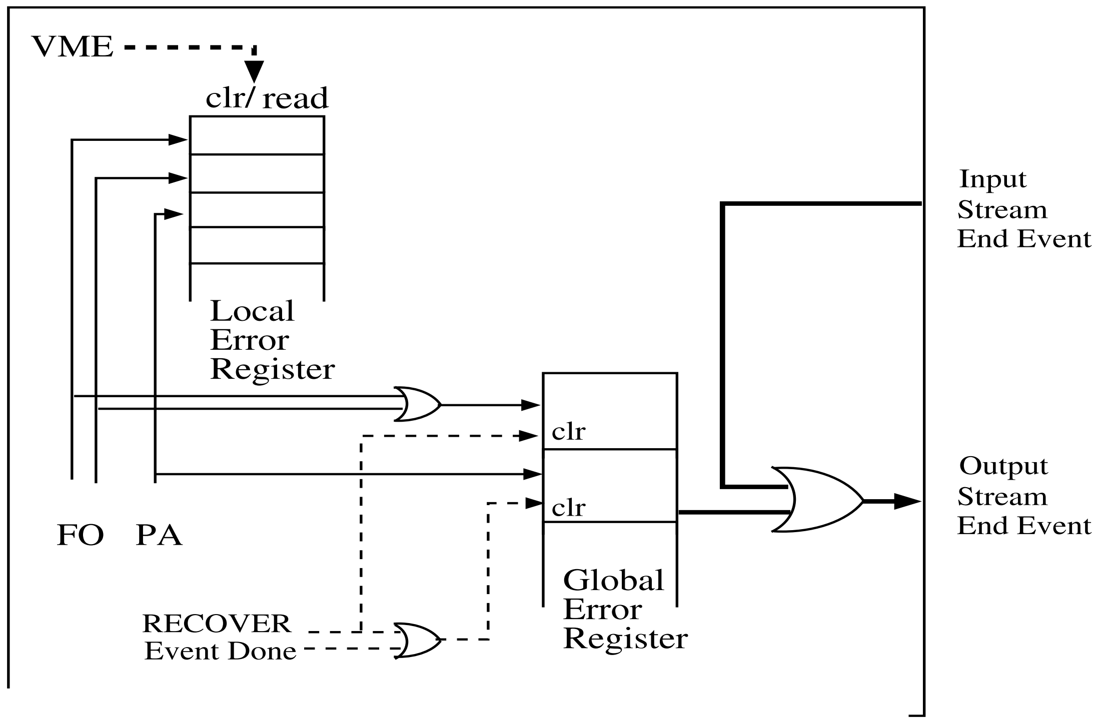
SVT Error Handling: Tools

Local Error Register:

- Records specific source of error
- Read/clear by VME

Global Error Register/End Event Word:

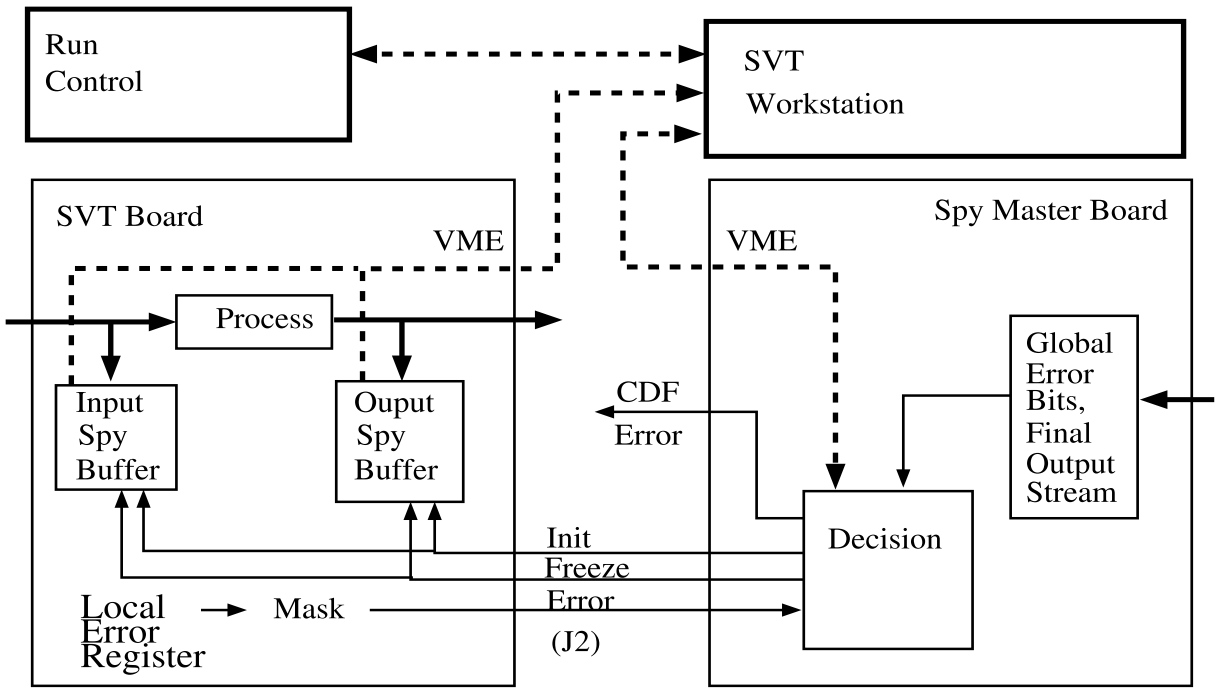
- Limited bits, summary of local flags
- Passed in End Event word
- OR'ed w/input and at merger points
- Sent to L2, saved in data stream
- Some cleared every event, some only on RECOVER



SVT Error Handling: Tools

<u>Spy buffers:</u>

- Circular memories on the input and output of every board
- Paused while no data
- Frozen on SPY Master command
- Read/cleared by VME



SVT Error Handling: Detected Errors

Lost Lock:

- G-link input

Parity:

- Checked every cable, every event

Lost Synch: (persistent)

- Bunch Crossing number checked at every merge ($360 \rightarrow 1$)
- Not checked against trigger signals

FIFO Overflow: (persistent)

- Implemented for every FIFO

Invalid Data:

- SVX input
- Internal streams: hits and roads

Internal Overflow:

- Too many hits in a superstrip

Truncated Output:

- Too many hits, roads, or tracks

HALT:
Manual/Run Control/Random:

SVT Error Handling: Actions

Record in Local Error Register:

- Saved until asked for over VME

Record in Global Register/End Event:

- Reported to L2 and saved in data stream

Spy Cycle:

- Freeze and read out Spy buffers
- Store data in SVT workstation database
- Read out and clear internal error registers
- Does not effect data processing

CDF Error:

SVT Error Handling: Typical Sequences

Parity Error:

- Set local error flag
- Saved in the End Event word for that event

Invalid Data:

- Recorded in local and global error registers
- Saved in the End Event word for that event
- Initiate Spy Cycle

Lost Sync:

- Set local/global error flag
- Saved in the End Event word for that event and all subsequent events until a HALT/RECOVER/RUN cycle
- Initiate Spy Cycle

G-link Lost Lock:

- Set local/global error flag
- Saved in the End Event word for that event and all subsequent events until a HALT/RECOVER/RUN cycle
- Spy Master pulls CDF error
- FIB's send fill frames

Random Spy Trigger:

- Initiate spy cycle, analyse data integrity

External CDF Error:

- Initiate spy cycle, analyse data integrity