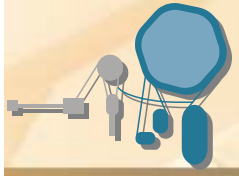
WR node functional specification status

1) Document structure
2) Current status / main changes
3) Ongoing discussion
4) Main open topics
5) How to proceed

WR node spec document structure



current documents

- WR Node – Functional Specification
- WR Node – Technical Specification
  (slim version, unchanged since last workshop)

proposed documents

- FEC Algorithms
- Granularity Window Concept
- White Rabbit Accelerator Event

cited, already existing documents

- WR Robustness
- WR Specification
- EtherBone Specification

cited specs

- IEEE
- ISOC RFC

WR node specs
current status / main changes

1) Updated spec with:

   → input from robustness discussion / spec
   → discussion results (Jean-Claude, Cesar, Tibor)

2) Further details and chapters necessary, but existing spec should only be changed for good reason

   → basis for near future discussion

3) Added chapters:

"Datagram content and WRN reaction"
→ use Etherbone
→ fully flexible approach, possibility to update datagram interpretation

"WR Configurable Timers"
→ (synchronously) timed node reaction

"WR Configurable Counters"
→ high degree of flexibility for trigger outputs, inputs, IRQs, etc.

"Counting Functionality"
→ management, watchdogs, error counters

"Soft CPU Functionality"

4) First absoulte numbers in spec as basis for discussion:

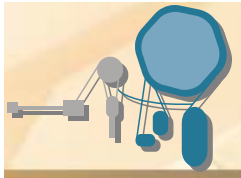
- "A WRN shall be possible to encode control messages in less than 10μs using algorithms specified in [FEC]."
- "A WRN shall be able to receive and process data up to the limit of the WR link of 1Gbit/s."
- "A WRN shall be able to decode control messages up to an upper mean limit of 500MBit/s."
- "A WRN shall be able to communicate its absolute notion of time to its Host Card if a request for time synchronization is received .... protocol based bus communication .... accuracy of the synchronized Host Card time shall be better than 50μs."
- A WRN shall be able to communicate its absolute notion of time to its Host Card using a combination of trigger pulse and Host Card bus communication: .... The accuracy of the synchronized Host Card time shall be comparable to or better than 1ns using this mechanism.

WR node specs
ongoing discussion

1) Customization
   - → Both CERN and GSI timing specificities must be possible with the same HW
   - → Further use cases must be covered: collaboration partners, general usage of WR

2) Topology
   - → Possibility to have multiple data masters on a WR network? Possible use case @CERN
   - → Concepts for redundant masters (data, clock, management) and network

3) Input from robustness discussion



WR node specs
main open topics

1) Support of higher layer protocols

2) Management functionality

3) More details about:
   - FMCs
   - intended Etherbone usage
   - Master nodes (clock, data, management)

4) Specifics for different form factors

WR node specs
how to proceed

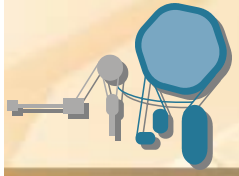
1) Start discussion in the WR community

2) Continue work on open topics

3) Start with proposed documents (FEC, GranW, AccEvents)

4) Stay tuned with other WR specs and changes

5) Start with WR node technical spec



Thanks for your attention

Any Questions ?