

Multi-threaded Strategies

• Multi-threading overview:

• SinglerT audio thread initialising and processing FIFCO

• Multiple “worker” threads processing the FIFO

Quarantines:

• How many threads do you start?

• Trade-off between CPU bus and throughput

• Fully real-time implementations (locks, mutex, events etc)

• Requires worker threads spinning for the FIFO waiting for available Nodes

• Worker threads can use CPlpare instruction

• Or birds/sleep-very difficult to get them to wake up at the right time to present

Non-real-time solution available to sleep/workers



NOT REAL-TIME!

Multi-threaded Strategies

- Multi-threading overview:
 - Single RT audio thread initialising and processing FIFO
 - Multiple “worker” threads processing the FIFO
- Questions:
 - How many threads do you start?
 - Trade-off between CPU use and throughput
- Fully real-time implementation means no system calls (locks, CVs, events etc.)
 - Requires worker threads spinning on the FIFO waiting for available Nodes
 - Worker threads can use CPU pause instructions
 - Or brief yields/sleeps - very difficult to get them to wake up at the right time to process
- Non-real-time solution can use condition variables to sleep/wake worker threads
 - **NOT REAL-TIME SAFE!**

Uses