ERC32 Evaluation Program Workshop

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DSS Evaluation Objectives

- Familiarization with ERC32 architecture
- Critical parmeters for on-board applications
  - code size (Globalstar $ 5 million for PROMs)
  - real-time behaviour
    - processor performance
    - interrupt handling
    - task switching
- S/W Development environment
  - user interface
  - debug / host target communication
  - documentation

Code Size: Compilation

- Testobjective: Globalstar AOCS-SW ~ 50 modules
- Comparison between Tld-1750A and AdaWorld ERC32
- Compiler Options "no checks" and "optimize"
- Result
  - TLD ~ 85 kByte
  - AdaWorld ERC32 ~ 156 kByte

Factor = 1.83 ~ 2

More detailled statistics in hand-out

Code Size: Run-time System

- Testobjective: Simple Ada program (Main + 2 identical tasks)
- Use run-time system as provided (no optimization)
- Result
  - Tld-1750A ~ 16 kByte
  - AdaWorld ERC32 ~ 56 kByte

Factor = 3.3 ~ 3

Code Size: Monitor

- Result
  - Tld-1750A ~ 12 kByte
  - AdaWorld ERC32 ~ 75 kByte

Factor = 6.25 ~ 6

Status

- planned start October 15, 1997
- delayed until January 10, 1998
- Compiler und linker installed und running
- problems with AlsyMonitor
- started with code size evaluation

Problems

- AlsysMonitor does not run on DEM32 target
- sometimes problems with lisence management
- source code of monitor and run-time system only partly available

Inflight Code Replacement

- package Indirect_Call provided by AdaWorld
- limited to procedures with no or one parameter
- procedures must be identified in early design phase
- makes code more difficult to read
- Tld approach with pragma better