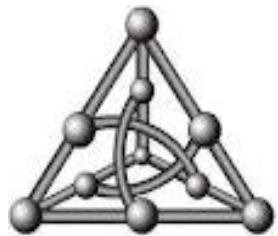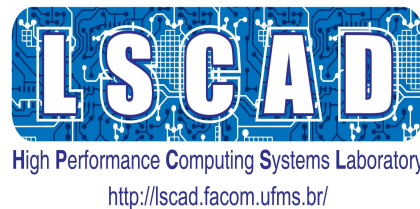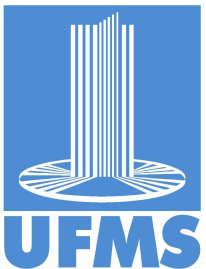# Research and Technological Innovation at LSCAD/FACOM/UFMS

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LSCAD

High Performance Computing Systems Laboratory
http://lscad.facom.ufms.br/

UFMS

LSCAD

Research, Development and Technological Innovation

LSCAD

- Research projects on a wide range of areas: embedded systems, digital and analogical electronics, high performance computing, compilers, and processor designs

  - LSCAD I: embedded system designs, high performance computing, processor and compiler designs, reconfigurable computing, digital circuits, and applied computing

  - LSCAD II: electronic designs, high performance computing

- Mission:

  - **Research and development focusing on results and products with significant impacts on the research community**

LSCAD People

- About Thirth five students
  - Fifteen graduate students
  - Twenty undergrad students
- Researchers from FACOM/UFMS:
  - Prof. Ricardo Santos
  - Profa. Nahri Moreano
  - Prof. Fábio Iaione
  - Prof. Luciano Gonda
  - Profa. Liana Duenha
  - Prof. Samuel Ferraz
  - Prof. Renan Marks

LSCAD Current Projects

- Applied/Practical Projects

  - Digital Content Generation for Low Cost TVs using physical computing platforms

  - Real-time system for welfare of bovine animals

  - RFID based system for Inventory and check in/out of books and equipments using low cost physical computing platforms

  - Low cost wireless sensor network hardware for precision agriculture

  - Automatic classification of bovine beef

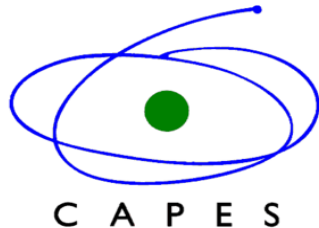# LSCAD Current Projects

- Research/Scientific Projects

    - Integrated Algorithms for Scheduling and Register Allocation on Processors

    - Program Encoding ISA Independent

    - Alternatives for the Dark Silicon Problem

    - Fault Tolerant Techniques for Embedded Systems

    - Bioinformatic Algorithms on GPUs

    - Low Cost Wireless Sensor Networks for Precision Agriculture
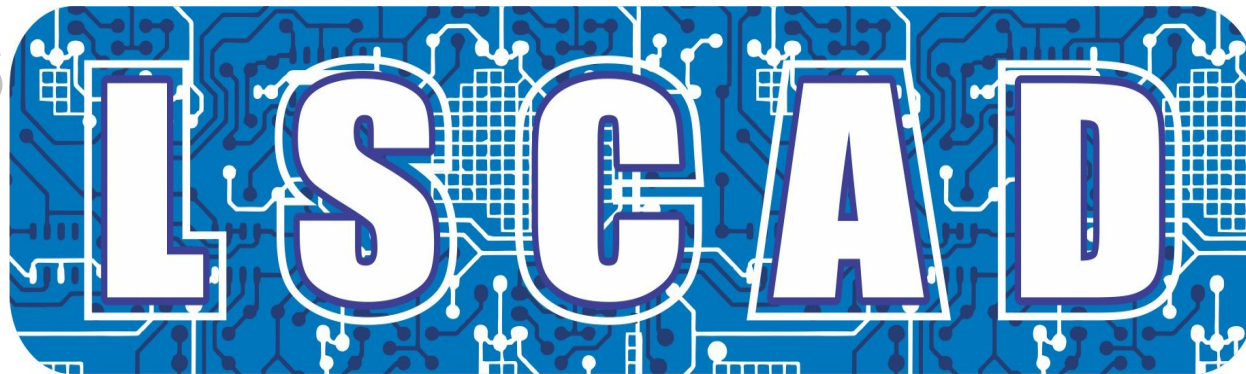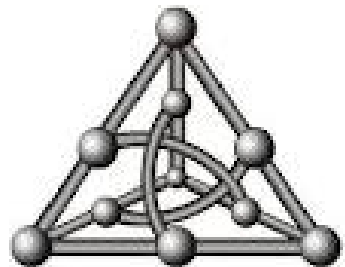
Products by LSCAD

- Integrated Software System for Diagnostic and Prognostic on Power Transformers

    - Partnership: LSCAD, CTEI, and Enersul (electrical company)

- Digital VLIW Processor Chip with Instruction Decoder hardware

    - Partnership: LSCAD, CADENCE, and SBMICRO

- Analog chip for MVL gates

    - Partnership: LSCAD, CTEI, UFMS, and CADENCE

- Digital Content Managament System for TVs (prototype)

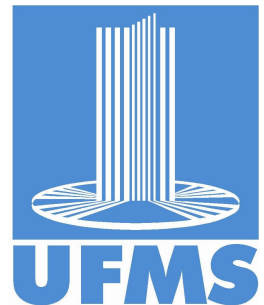- RFID Based System for Inventory and Self check in/out of books and kits using physical computing (prototype)

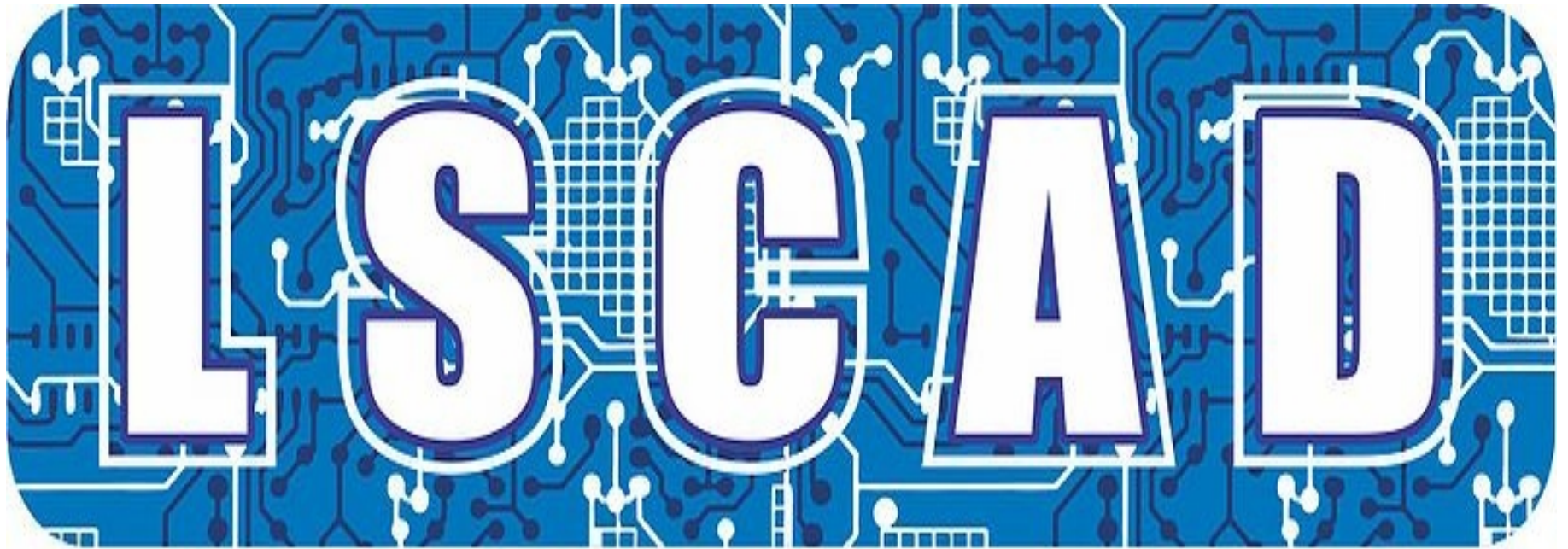# LSCAD – Project Partners and Research Funding Agencies

LSCAD

- Go visit:
    - http://lscad.facom.ufms.br