# Licensable Technologies

# EnergyFit™

**LOS ALAMOS NATIONAL LABORATORY**
**ENERGYFIT**
COOL  FAST  RELIABLE  COMPUTING
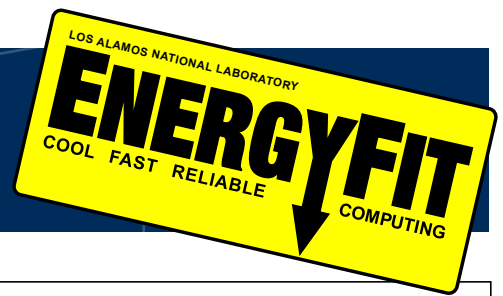
## Applications:

- High performance computing (HPC)
- Financial data centers
- Scientific computing
- Multimedia computing
- Search farms
- Internet service providers (ISPs)

## Benefits:

- Lowers power bills
- Lowers infrastructure costs
- Is environmentally friendly
- Reduces data center footprint
- Reduces system failure

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## Summary:

Energy use and related thermal management issues are serious business concerns for companies that maintain large central databases. Hundreds of millions of dollars are wasted annually due to power consumption, inefficient use of space, and climate control systems to prevent overheating. The source of the problem is the increasing energy demand and heat output related to the growth of CPU database centers. EnergyFit™ was designed to address energy and heat issues via efficient and low impact technology.

*Power dissipation per square centimeter for commodity microprocessors has risen dramatically over the last 20 years. (Source: Intel)*

EnergyFit™ system software tunes CPUs for optimal performance by adjusting speed in correlation with dynamic workload requirements. Los Alamos National Laboratory researchers determined CPU peak voltage was not always necessary for efficient workload function. When minimal CPU voltage is matched with real-time workload requirements, significant reductions in heat output and electrical cost can be maintained consistently. EnergyFit™ software monitors processing requirements and modifies CPU voltage accordingly in real-time to minimize energy expenditure.

EnergyFit™ software can be applied to personal, corporate, and government venues to help mitigate serious data center power consumption problems. The software has been demonstrated to produce reductions in power usage on the order of 15% to 39%, depending on the type and intensity of application load.

## Development Stage:

EnergyFit™ has been successfully reduced to practice and tested. Application-specific requirements are necessary for specific systems.
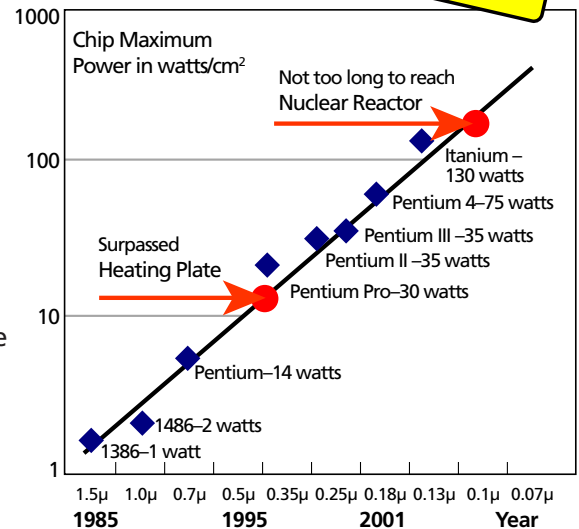
EnergyFit is based on a suite of algorithms that describes how to select and adapt the optimal CPU speed in real-time. This invention is patent pending.

## Patent Status:

International and U.S. patents are pending.

## Licensing Status:

This technology is exclusively licensed.

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