

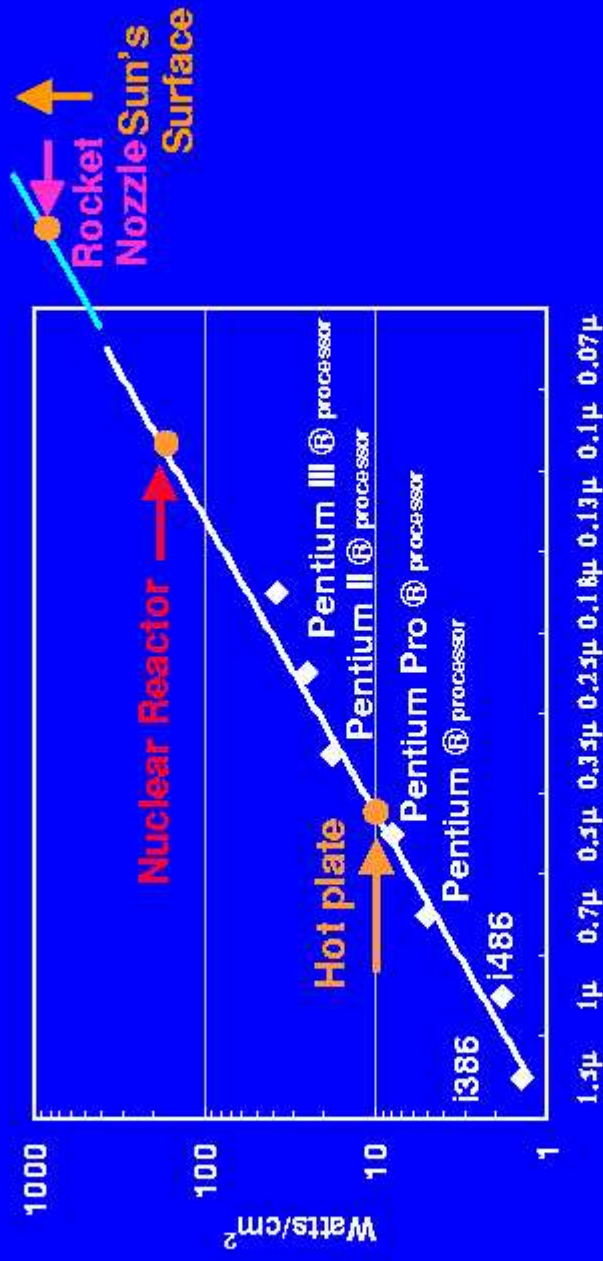
Where does the power go

- Laptop
 - Display 50-60
 - CPU 20 (30-50% is clock in high performance)
 - HD the rest 20-30
- ZebraNet
 - Transmission of data

Principles of low-power computing

- Global approach
 - Interrupt driven I/O
 - Variable speed clocks
 - Highly optimize the software
 - The right size cache
 - Make the trade-off in speed-delay for components
 - Memory
 - Tune at the circuit level
 - Clock gating
 - Control the user experience

Power density continues to get worse



Surpassed hot-plate power density in 0.5μ

Not too long to reach nuclear reactor

How to solve the power problem?

- Fuel cells
- Solar
- Nuclear
- Gas powered
- Energy gas
- Beamed power
- Bio-powered

FireTrackerNet

- We want to know....
 - How hot it is
 - Metrics
 - How fast its moving
 - Wind
 - Size
 - People? Pets? Art work?
 - Material that is fueling the fire

FireTrackerNet SPECS

- Survive drop from a helicopter
 - 500 – 2000ft drop
- Sense 2-5ft, temp, wind, chemical detector, water (humidity), pressure, position
- Survive the fire for awhile
 - Minutes to a couple hours
- Communicate information wirelessly
- Cheap – various specialized functions
- Biodegradable