



How I Spent My Moore's Law Dividend

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Software for the Real World Panel

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How Hard Can it Be?

- What we *should* mean when we say embedded software will get more complex:
 - More internal trade-off/coord issues, e.g. power, noise, signal/info fusion, etc.
 - Non linear control models
 - Uncertainty with highly interdependent variables and events
 - Simultaneous model selection and parameter estimation
 - Detailed models of physical, biological, psychological and social systems

What might we need?

- Lots of anytime algorithms
- Lots of computation about time for & value of further computation, communication
- Lots of dynamic planning, scheduling, reconfiguration, interfacing of components
- Essential:
 - Incremental Development
 - Early testing, esp. operational testing

Plus a few of my favorite things

- Enable reuse by making interfaces:
 - Tolerant
 - Active
 - Negotiated
- Make our systems self-adaptive:
 - Self aware (self describing)
 - Self monitoring
 - Self repairing