
Molecular Manufacturing

Beyond Moore's Law

Philip Kuekes

Hewlett-Packard Laboratories

In2m Workshop

March 12, 1999

Happy 40th Birthday - IC

- Jack Kilby - Robert Noyce
- The Tyranny of Numbers

Teramac

- **The Quality Goes In
After the Name Goes On**

Defect Tolerance for Free

- **IC Technology -**

Configuration bit 20 x wire crossing area

- **Molecular Technology -**

Configuration bit smaller than wire crossing

Insurance Premiums

- When your house insurance costs ten times your mortgage payment it's time to move.

Good Enough CAD/CAM

- Local Not Global Minima
- CAD on the fly

I Get By With A Little Help From My Friends

- Tutors
- Chiropractors

Imperfect Computers

- Build then Design
- Supercomputer Labor is Cheap
- Invest in Configuration Bits

Non Eli Manufacturing

- Eli Whitney
- Defective Parts
- Supercomputers
as cheap labor