



1990 Worldwide Developers Conference



C.K. Haun

Apple II Developer Tech Support
DTS Engineer

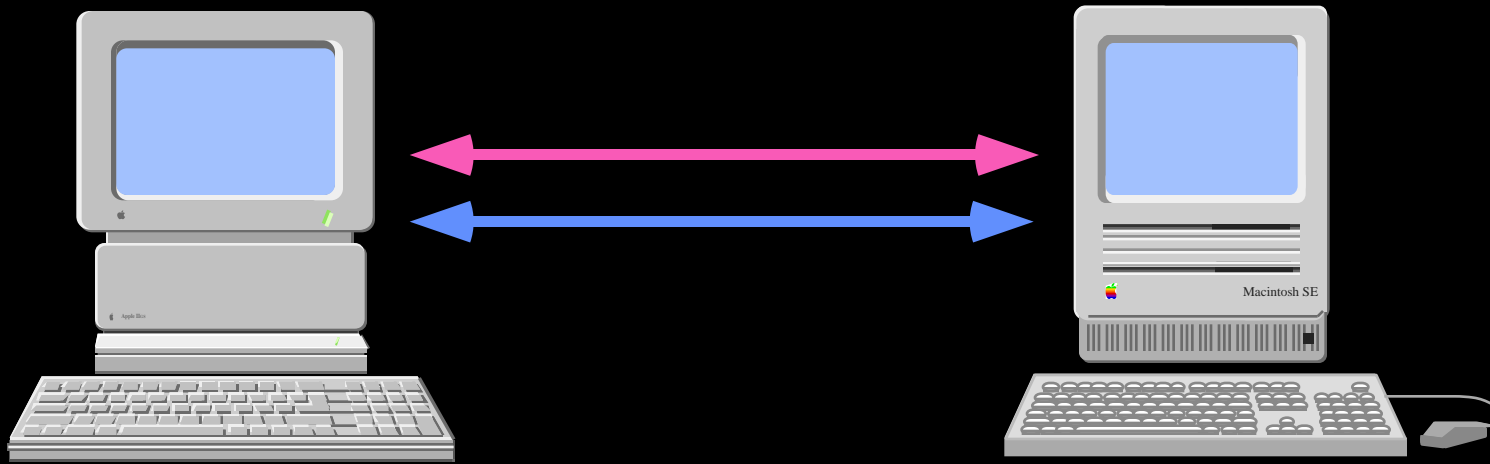


2 For One

GS/Mac Parallel Development

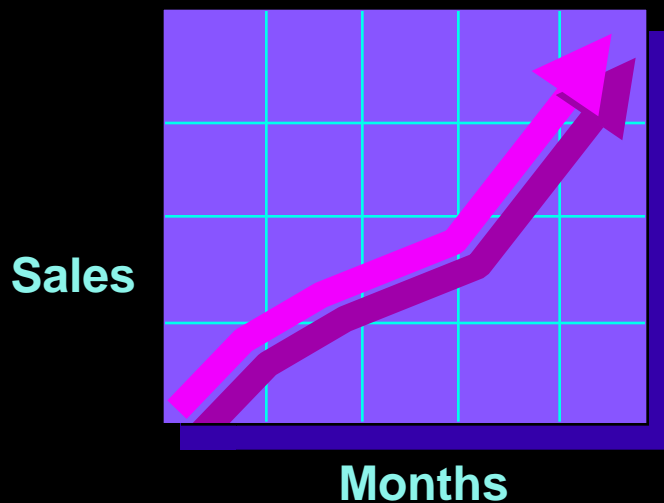
Money for Nothing

- Save time
- Standardize your products
- Do projects **once**, not twice



What's in it for Me?

Commercial Benefits of Parallel Programming



- At **least** 700,000 potential new customers
- Name recognition
- Consistent user interface
- Shortened product testing cycles

What's the Catch?

- More planning up front
- Programmer Resistance
- **Subjective** longer development times



Initial Coding

Conversion



Parallel Coding

Overcoming Fear and Loathing

- Siblings under the plastic
- Programmer hesitation
 - Specializing
 - Learning curve
 - Added steps in process

Down to Business

Structure and Components of the Sample Parallel Project

- Language
 - K&R C, MPW C and MPW CIIGS
- Tools
 - ResEdit
 - Design Master
- Machines
 - Macintosh IIcx
 - Apple IIGS

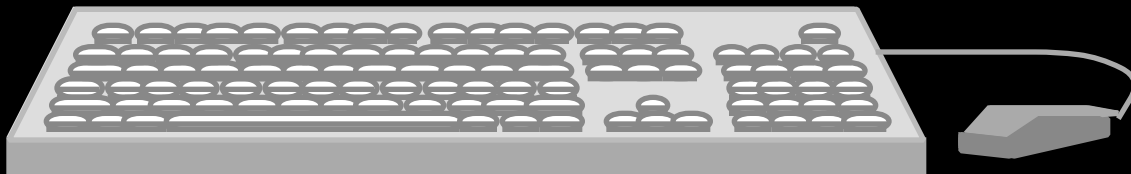
Thinking About It

- ToolBoxes
- Graphics
- Coding



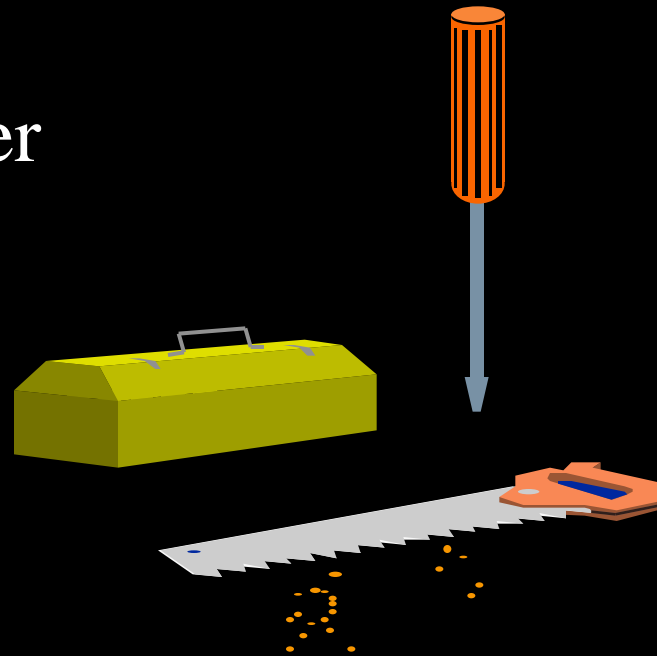
Doing It!

- ToolBox strategies
- Programming logic
- Managing parallel development
- Maintaining the product



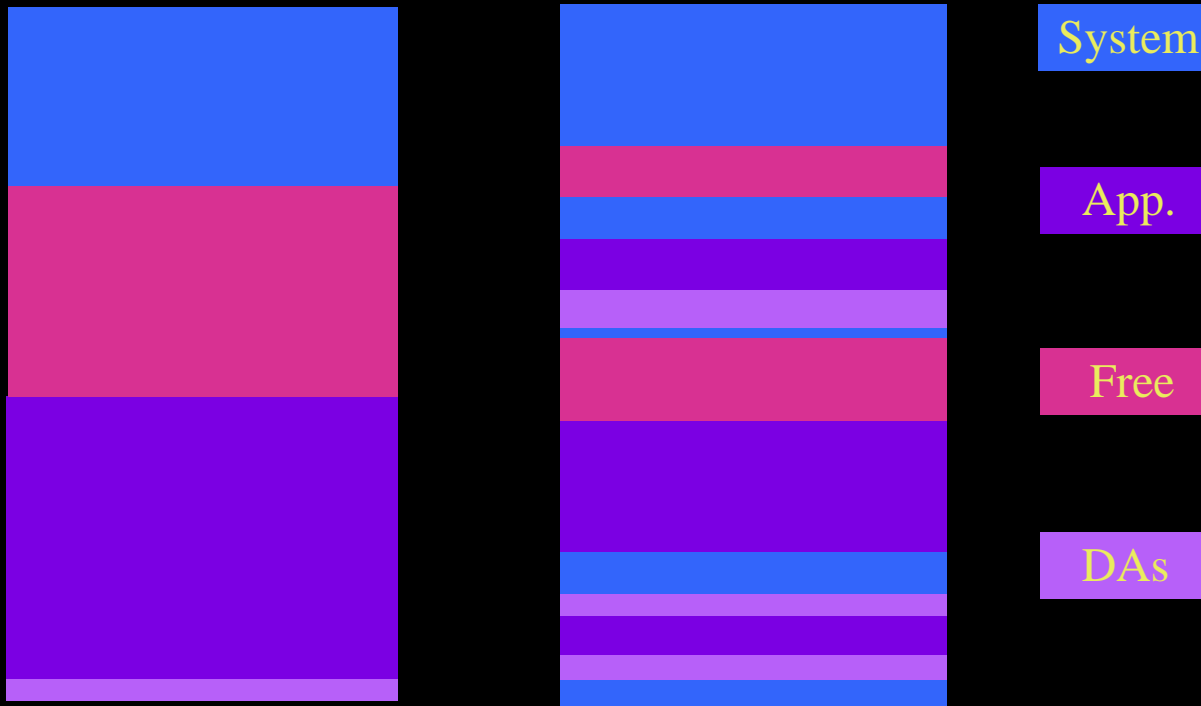
Tools of the Trade

- Memory management
- Quickdraw/QuickDrawII
- Menu
- Events/TaskMaster
- Windows/Dialogs
- Sound
- Printing



Memory Management

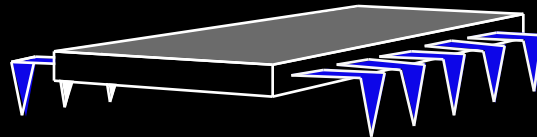
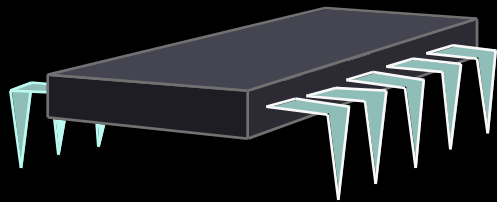
Heap vs Scattered



QuickDraw

Graphic Images

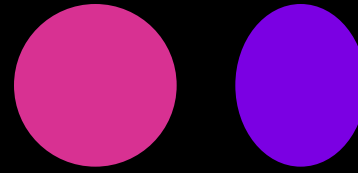
- Native creation
- Create/convert
- Trust your artist



QuickDraw

Coordinates and Drawing

- ➡ Problems
 - Coordinate differences
 - Aspect ratio
- ➡ Solution
 - Resources



QuickDraw

Fast Animation and Parallel QuickDraw Tricks

- There aren't any
 - Life's like that sometimes

Menu Management

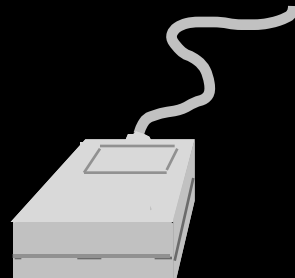
- **Almost** identical
 - Hierarchical and PopUps
- Menu and menu item ids
 - Absolute vs relative



Events

TaskMaster–Get/Wait NextEvent

- FixEvent()
 - Encapsulate
 - Adjust
 - Symmetry



Windows

- No relearning
- FixEvent() handles differences

Dialogs

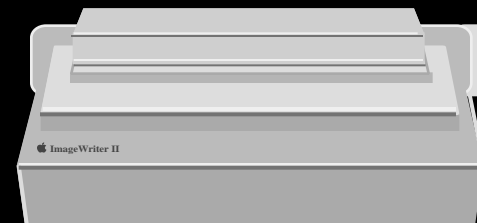
- Creation
 - Resources
 - Source templates
- Item handling
 - More system level item handling on GS

Sound

- Similar
 - NoteSyn
 - Simple digitized sounds
 - MIDI
- Radically different
 - Multi-voice
 - Direct Ensoniq access

Printing

- Drivers are drivers
 - Talking to the same devices
- QuickDraw is QuickDraw
- Careful with the calls
 - Close, but not quite the same



Programming Logic

- Design
 - Think before you start
- Process
 - Machine dependencies
 - Analogs
 - Aliases

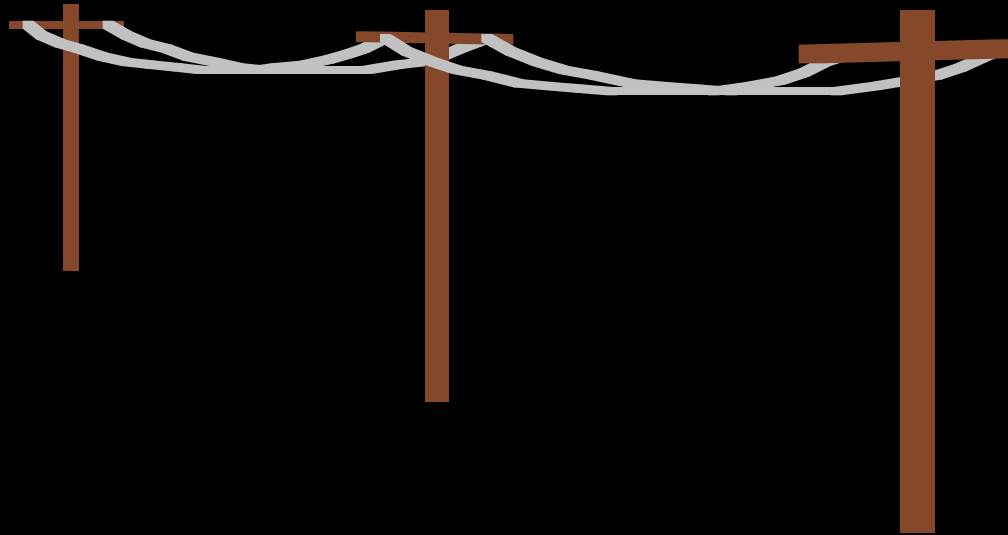
Is It Parallel?

- Maybe not
 - Special graphics
 - Speed critical routines
 - Special memory handling

Maintain As Much Parallel Code
As You Can!

Managing The Parallel Process

- Coordination
- Communication
- Centralization



Maintaining It

- Documentation
 - All work around code
- Passing off
 - Training
 - Expect confusion
- Libraries
 - Makes the job easier next time



The power to be your best