

**Benchmark Report**

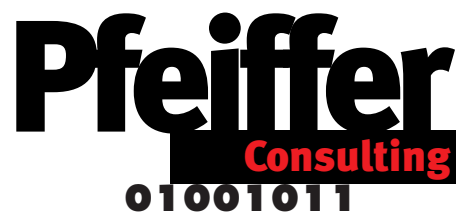
**The 30-inch  
Apple Cinema HD Display  
Productivity Benchmark**

**Client: Apple Computer**

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For information contact: [research@pfeifferreport.com](mailto:research@pfeifferreport.com)




## Table of Contents

<b>About the Benchmark Project .....</b>	<b>3</b>
Benchmark Overview .....	4
Hardware and Configuration: Details .....	4
About the Benchmarks .....	5
Productivity Measures: Details .....	6
<b>Results and Charts .....</b>	<b>9</b>
General Productivity: Complete Results .....	10
General Productivity: Charts .....	12
Digital Imaging: Complete Results .....	23
Digital Imaging: Charts .....	24
Design & Publishing: Complete Results.....	29
Design & Publishing: Charts .....	31

 <b>Pfeiffer</b> Consulting 01001011	<b>Client: Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

**About the Benchmark Project**

<b>Section: About the Benchmark Project</b>		<b>3</b>
For further information contact: <a href="mailto:research@pfeifferreport.com">research@pfeifferreport.com</a>	<b>September 2, 2006</b>	

	Client: <b>Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

## 1 Benchmark Overview

This benchmark project was conducted by Pfeiffer Consulting for Apple Computer in order to measure the productivity differences between Apple's 30-inch Cinema HD Display and smaller displays.

### 1.1 Productivity Benchmarks

The productivity measures covered several application areas: digital imaging, design and publishing, as well as general productivity.

Productivity benchmarks were conducted using a set of workflow specifically defined productivity measures, executed with Adobe InDesign CS2, Photoshop CS2, Illustrator CS2, Microsoft Office 2004, and QuarkXPress 6.5.

Productivity measures were conducted using the **Pfeiffer Consulting Methodology for Productivity Benchmarking**

## 2 Hardware and Configuration: Details

### 2.1 Displays Tested

The following displays were used for the benchmarks:

- 17-inch Samsung SyncMaster Display 172x, with an optimal resolution of 1280 x 1024 pixels
- 30-inch Apple Cinema HD Display, with an optimal resolution of 2560 x 1600 pixels
- Selected benchmarks were also conducted using a 20-inch Apple Cinema HD Display, with an optimal resolution of 1680 x 1050 pixels


### 2.2 Hardware Configuration

- Benchmarks were conducted on a standard 2.7GHz Power Mac G5 equipped with 2GB of RAM.

### 2.3 System Software

- All benchmarks were run on a standard, unmodified installation of Mac OS X 10.4.2.

<b>Section: Benchmark Overview</b>		<b>4</b>
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	Client: <b>Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

## 3 About the Benchmarks

### 3.1 System Setup

- All tests were performed using the standard system installation and configuration.
- All systems were completely reinitialized before tests, using the default values for installation.
- All hard drives were reformatted using a single partition.
- All software was installed from scratch, using default settings.
- No peripherals were connected to the systems during performance benchmarks.

### 3.2 Benchmark Basics

- All application software was used in its most recent commercially available release: Adobe Photoshop CS2, Adobe Illustrator CS2, Adobe InDesign CS2, Microsoft Office 2004, and QuarkXPress 6.5.

### 3.3 Application Settings


- All applications were installed specifically for the benchmark project, and used in their standard configurations.

### 3.4 About the Methodology of the Productivity Benchmarks

Productivity Benchmarks were composed as a number of phases. Every phase of the benchmark was then defined as **several sets of clearly defined, repeatable steps**. These steps were then executed in a strictly identical way by trained professionals.

Each set of steps was executed three times; the average of all three results were used in the charts. The total times for each benchmark were obtained by **cumulating the average measures obtained for each individual set of steps**.

<b>Section: About the Benchmarks</b>		<b>5</b>
For further information contact: <a href="mailto:research@pfeifferreport.com">research@pfeifferreport.com</a>	<b>September 2, 2006</b>	

	Client: <b>Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

## 4 Productivity Measures: Details

### 4.1 General Productivity

General Productivity tests measured the time necessary to perform frequently encountered tasks in general computer use. Tests included System and Finder operations, word-processor and spreadsheet tests, as well as some application integration measures.

- **Finder Productivity - Multiple File Selection**

This test measured the time to select several designated files in a folder with several dozen documents, displayed in list view. The test included scrolling the window when necessary.

- **Applying Repetitive Formatting in Word Processing Document**

The test measured the time to apply formatting to several designated paragraphs in a multi-page word-processing document, including scrolling the window when necessary.

- **Combining Text from Multiple Documents (Word Processor)**

The test consisted in cutting and pasting designated portions from two different, open word-processor documents into a new document; switching between windows and scrolling as necessary.

- **Cut/Paste Cells in Large Spreadsheet**

The test measured the time to move cells from one designated area in a large spreadsheet into another, scrolling the window as necessary.

- **Combining Cells from Multiple Spreadsheets (Excel)**

The test consisted in cutting and pasting designated portions from two different, open spreadsheet documents into a new document; switching between windows and scrolling as necessary.


- **Cut/Paste Formatting in Large Spreadsheet (Excel)**

The test measured the time necessary to copy formatting from one master-cell, and applying this formatting to a number of designated, discontinuous cells. The test procedure included making the selection and applying the formatting, scrolling the window when necessary.

- **Application Integration (Word/Excel)**

In this test, elements from several Microsoft Office documents were combined through cut and paste, scrolling and repositioning the windows when necessary.

<b>Section: Productivity Measures: Details</b>		<b>6</b>
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	Client: <b>Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

- **Moving Files Between Folders (Finder)**

The test measured the time necessary to select a group of files and moving it between folders, resizing and repositioning windows as necessary.

- **Sorting 400 Junk Mail Messages**

This test measured the time necessary to scroll and select junk mail messages in a folder.

#### **4.2 Digital Imaging**

**Digital imaging productivity measures were defined to document the difference in productivity between the displays, with regards to frequently performed operations in professional digital imaging.**

- **Cleaning Up Digital Pictures**

This test consisted in removing blemishes from an 8MP digital photograph. Images were displayed at 100% in Photoshop, removing blemishes with the clone brush, moving from one image segment to the next with the Hand Tool when necessary.

- **Checking High-Resolution Image for Sharpness**

This test measured the time necessary to check a 8MP digital photograph for sharpness, starting at the top left corner, moving from one image segment to the next with the Hand Tool when necessary.

- **Drag and Drop Editing Between Multiple Images**

The test procedure consisted in dragging predefined layers from two separate images into a composite, and positioning them precisely with the mouse, switching images when necessary.


- **Drag and Drop Editing Between Photoshop and Illustrator**

The test consisted in transferring a graphic element from an Illustrator document into a Photoshop composite, then switching back to Illustrator to make a minor adjustment, as well as transferring and positioning the modified element. The test included zooming and positioning windows if necessary.

- **Drag and Drop Editing Between Illustrator and InDesign**

The test consisted in transferring a graphic element from an Illustrator document into an InDesign document, then switching back to Illustrator to make a minor adjustment, as well as transferring and positioning the modified element. The test included zooming and positioning windows if necessary.

<b>Section: Productivity Measures: Details</b>		<b>7</b>
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	Client: <b>Apple Computer</b>	<b>Benchmark Report</b>
	<b>The 30-inch Apple Cinema HD Display Productivity Benchmark</b>	

### 4.3 Design & Publishing

Design and publishing productivity measures were defined to document the difference in productivity between the displays, with regards to frequently performed operations in page layout applications such as Adobe InDesign CS2 and QuarkXPress 6.5.

- **Formatting Text with Stylesheets (InDesign)**

This test measured the time necessary to apply style-sheets to previously designated paragraphs of text in a double page spread, using the mouse and keyboard shortcuts, and moving from one page segment to the next with the Hand Tool when necessary.

- **Full-Page Editing (InDesign)**

The test measured the time necessary to move two graphic elements from the left page of a spread to the right page, positioning them precisely in a previously designated area, zooming in and out when necessary.

- **Editing with Multiple Palettes (InDesign)**

This test measured the time necessary to make minor modifications in an InDesign document, accessing 3 different docked palettes, opening and closing them if necessary.

- **Editing with Multiple Windows (InDesign)**

In this test, a graphic element was transferred from one page of a multi-page document to another. The test included switching between windows, and moving them if necessary.

- **Drag and Drop File Placement (Finder/InDesign)**

This test measured the time necessary to place images in an InDesign document, by dragging them from a Finder window into the page layout. The test included moving and resizing window when necessary.

- **Fine-Tuning Page Layout in QuarkXPress**

In this test, the position and size of several graphic elements in a page layout was modified using the mouse, moving from one page segment to the next with the Hand Tool when necessary.

<b>Section: Productivity Measures: Details</b>		<b>8</b>
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**Benchmark Report**

**The 30-inch Apple Cinema HD Display Productivity Benchmark**

## **Results and Charts**

**Section: Results and Charts**

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**September 2, 2006**

## General Productivity: Complete Results

### Finder Productivity - Multiple File Selection

	17-inch Display	30-inch Display
Select Files	26.5	20.8

### Applying Repetitive Formatting in Word Processing Document

	17-inch Display	30-inch Display
Apply Formatting	35.2	27.1

### Combining Text from Multiple Documents (Word Processor)

	17-inch Display	30-inch Display
Para. 1+2	24.1	13.6
Para. 3+4	32.8	12.3
Para. 5+6	35.1	13.5
<b>Total</b>	<b>92.0</b>	<b>39.4</b>

### Cut/Paste Cells in Large Spreadsheet

	17-inch Display	20-inch Display	30-inch Display
Cut/Paste Cells	24.9	15.2	10.9

### Combining Cells from Multiple Spreadsheets (Excel)

	17-inch Display	30-inch Display
2 Documents	23.6	11.3
3 Documents	42.6	20.7

Time in seconds. Shorter is better

### Section: Results and Charts

**Cut/Paste Formatting in Large Spreadsheet (Excel)**

	<b>17-inch Display</b>	<b>20-inch Display</b>	<b>30-inch Display</b>
Phase 1	24.2	20.2	27.2
Phase 2	24.9	20.0	0
<b>Total</b>	<b>49.1</b>	<b>40.2</b>	<b>27.2</b>

**Application Integration (Word/Excel)**

	<b>17-inch Display</b>	<b>30-inch Display</b>
2 Documents	18.9	10.7
3 Documents	34.5	17.0

**Moving Files Between Folders (Finder)**

	<b>17-inch Display</b>	<b>30-inch Display</b>
Moving Files	29.3	15.7

**Sorting 400 Junk Mail Messages**

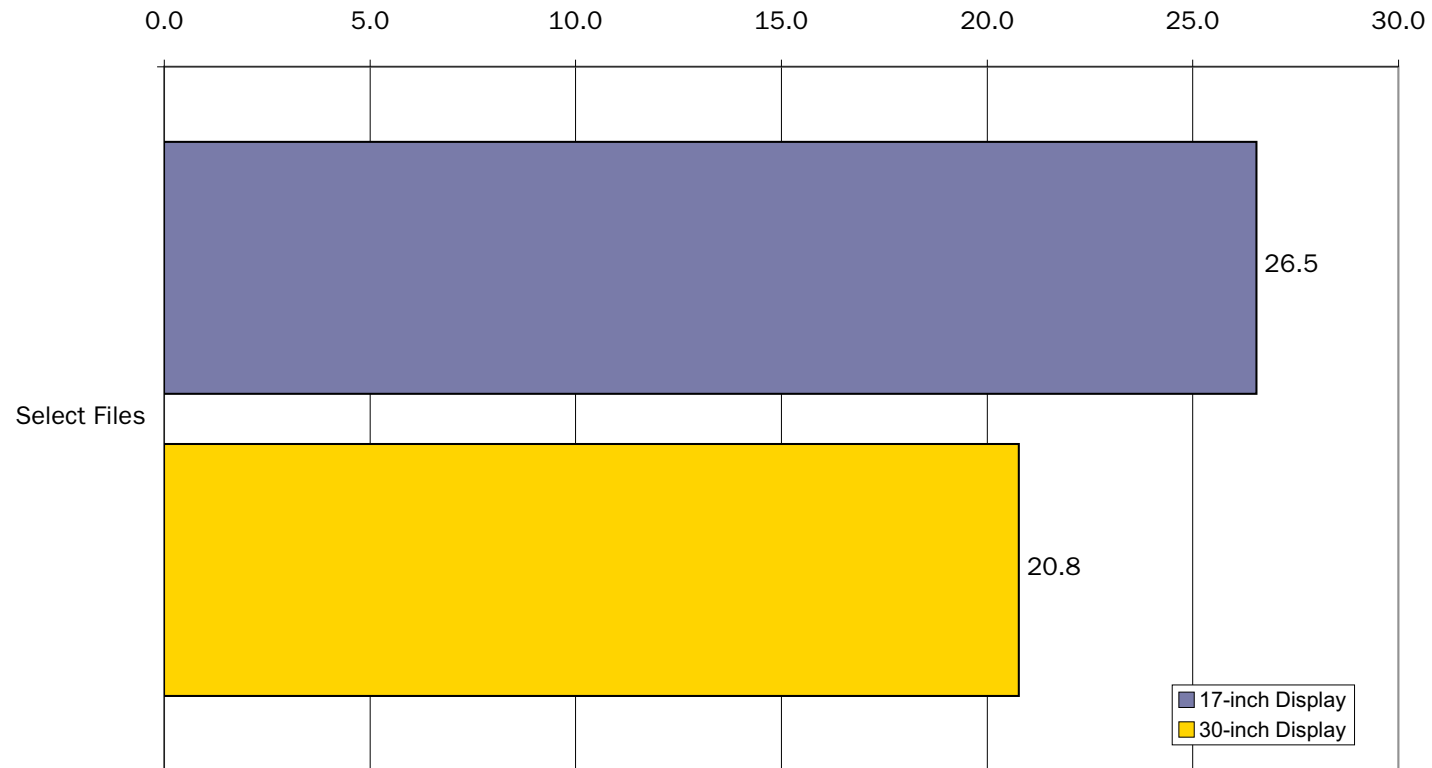
	<b>17-inch Display</b>	<b>30-inch Display</b>
Scan Folder	47.0	35.4
Scroll/Select Junk Mail	10.5	9.2

Time in seconds. Shorter is better

**Section: Results and Charts**

## General Productivity: Charts

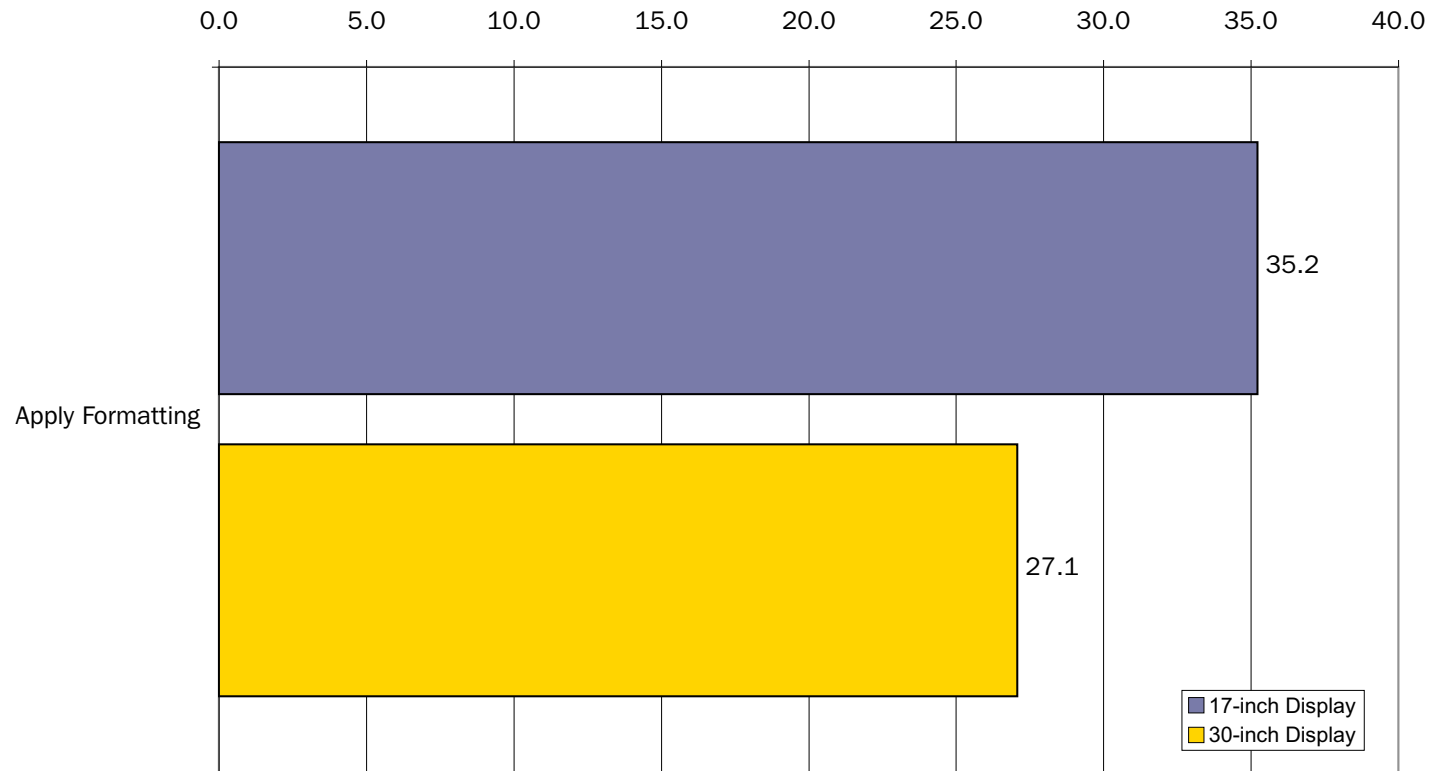
### Finder Productivity - Multiple File Selection



Time in seconds. Shorter is better

### Section: Results and Charts

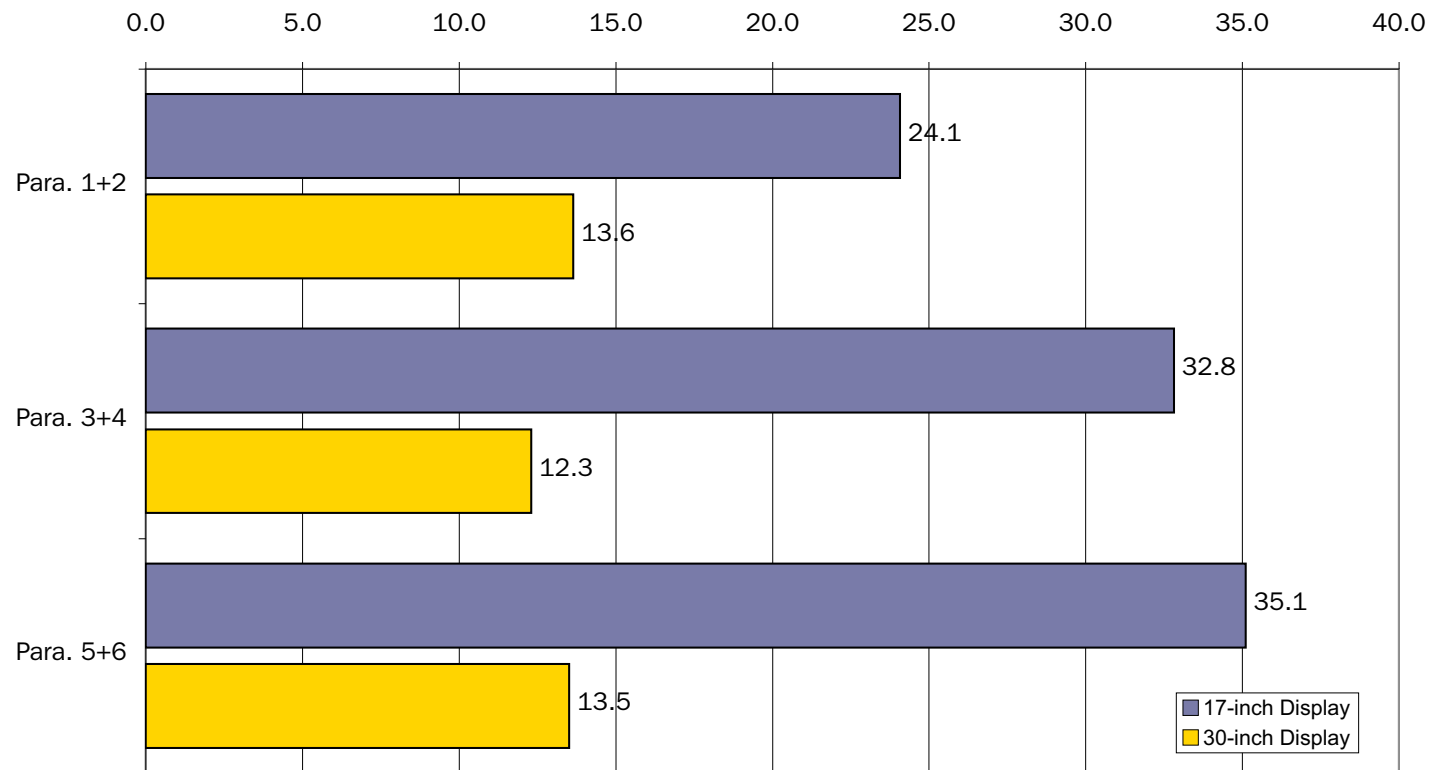
### Applying Repetitive Formatting in Word Processing Document



Time in seconds. Shorter is better

**Section: Results and Charts**

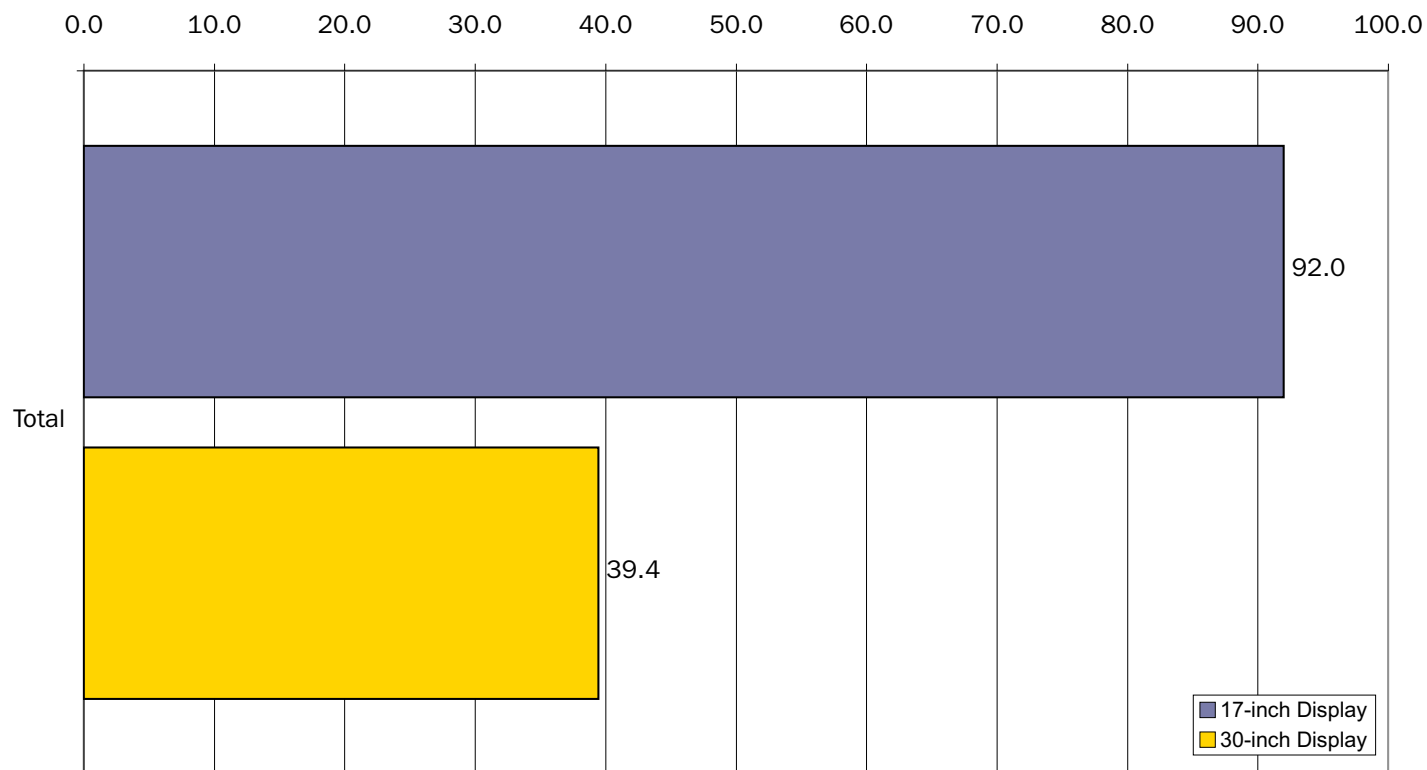
**Combining Text from Multiple Documents (Word Processor)**



Time in seconds. Shorter is better

**Section: Results and Charts**

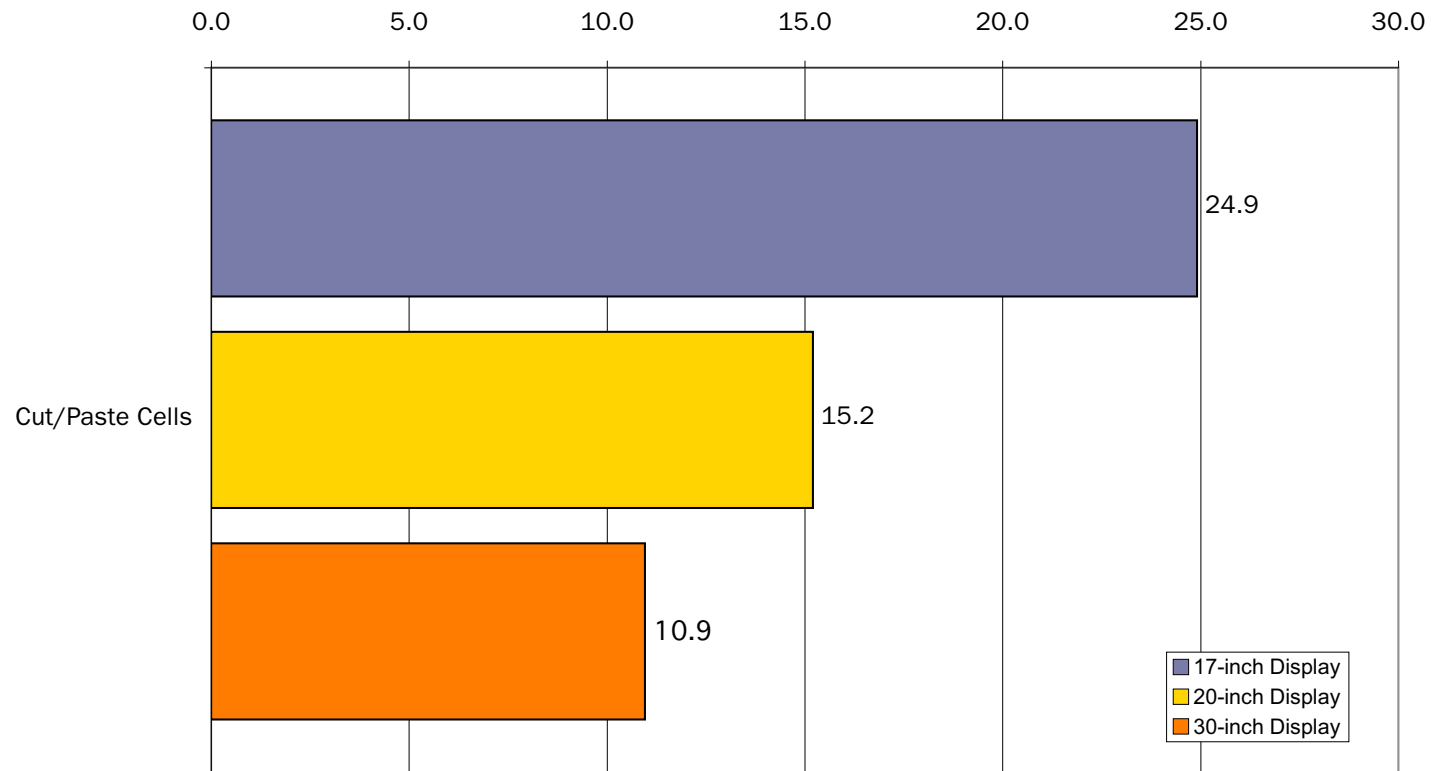
**Combining Text from Multiple Documents (Word Processor)**



Time in seconds. Shorter is better

**Section: Results and Charts**

**Cut/Paste Cells in Large Spreadsheet**

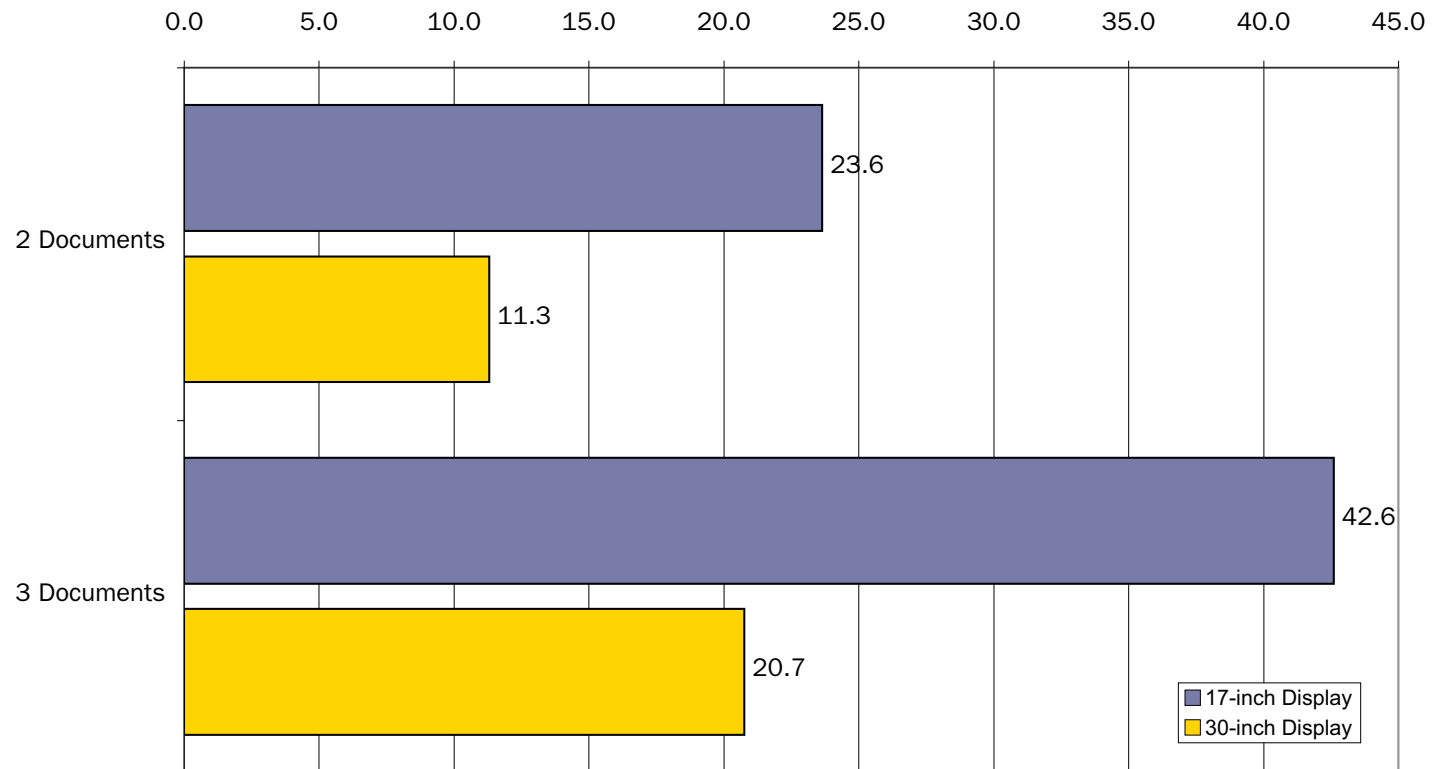


Time in seconds. Shorter is better

**Section: Results and Charts**



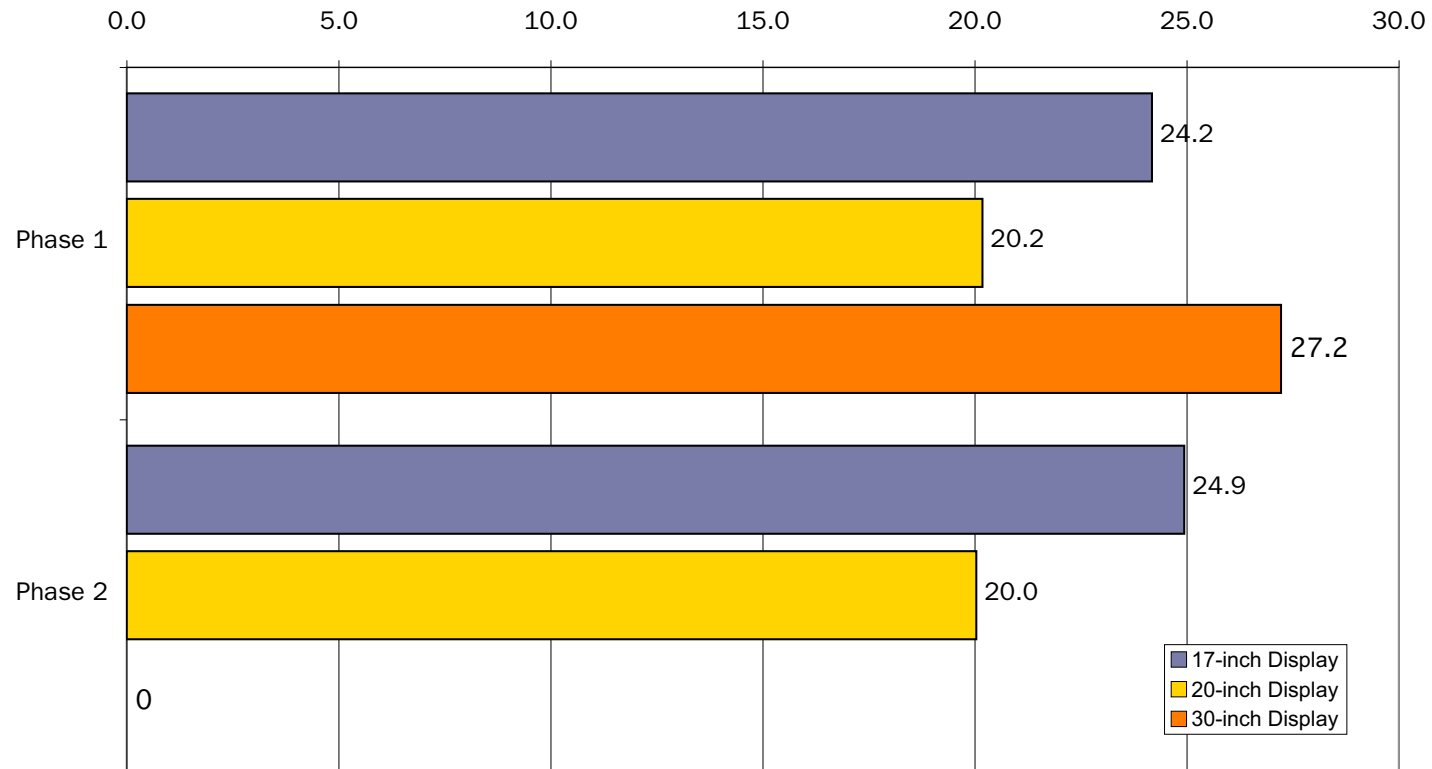
**Combining Cells from Multiple Spreadsheets (Excel)**



Time in seconds. Shorter is better

**Section: Results and Charts**

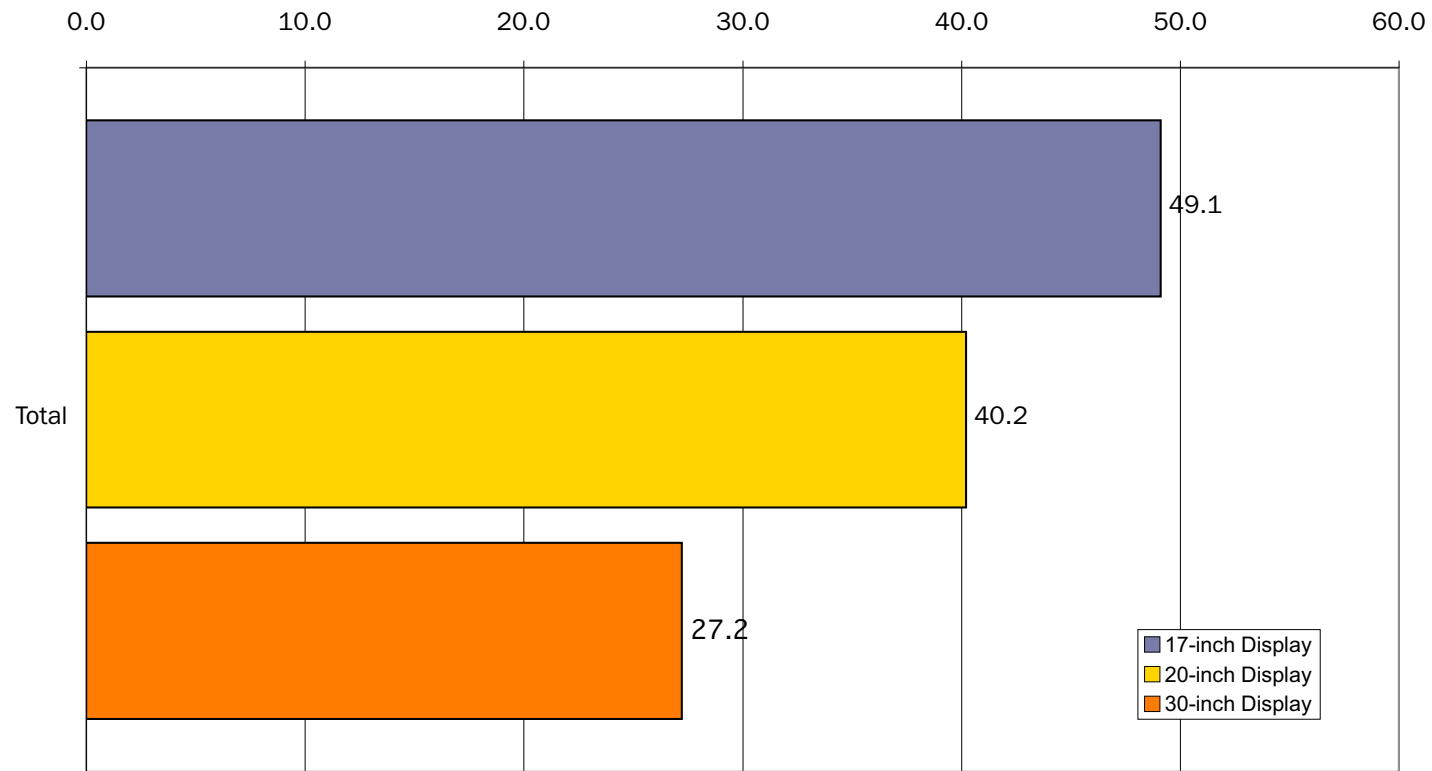
**Cut/Paste Formatting in Large Spreadsheet (Excel)**



Time in seconds. Shorter is better

**Section: Results and Charts**

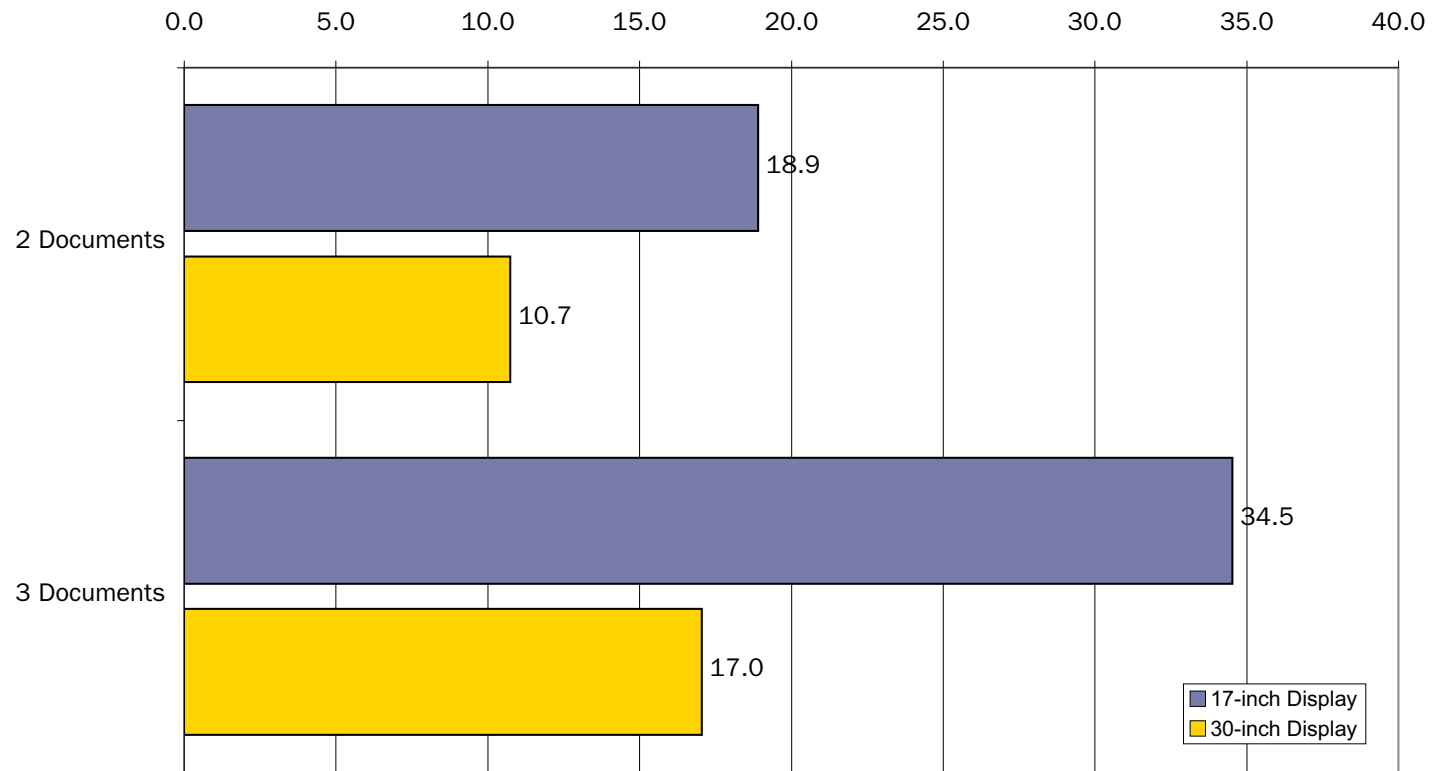
**Cut/Paste Formatting in Large Spreadsheet (Excel)**



Time in seconds. Shorter is better

**Section: Results and Charts**

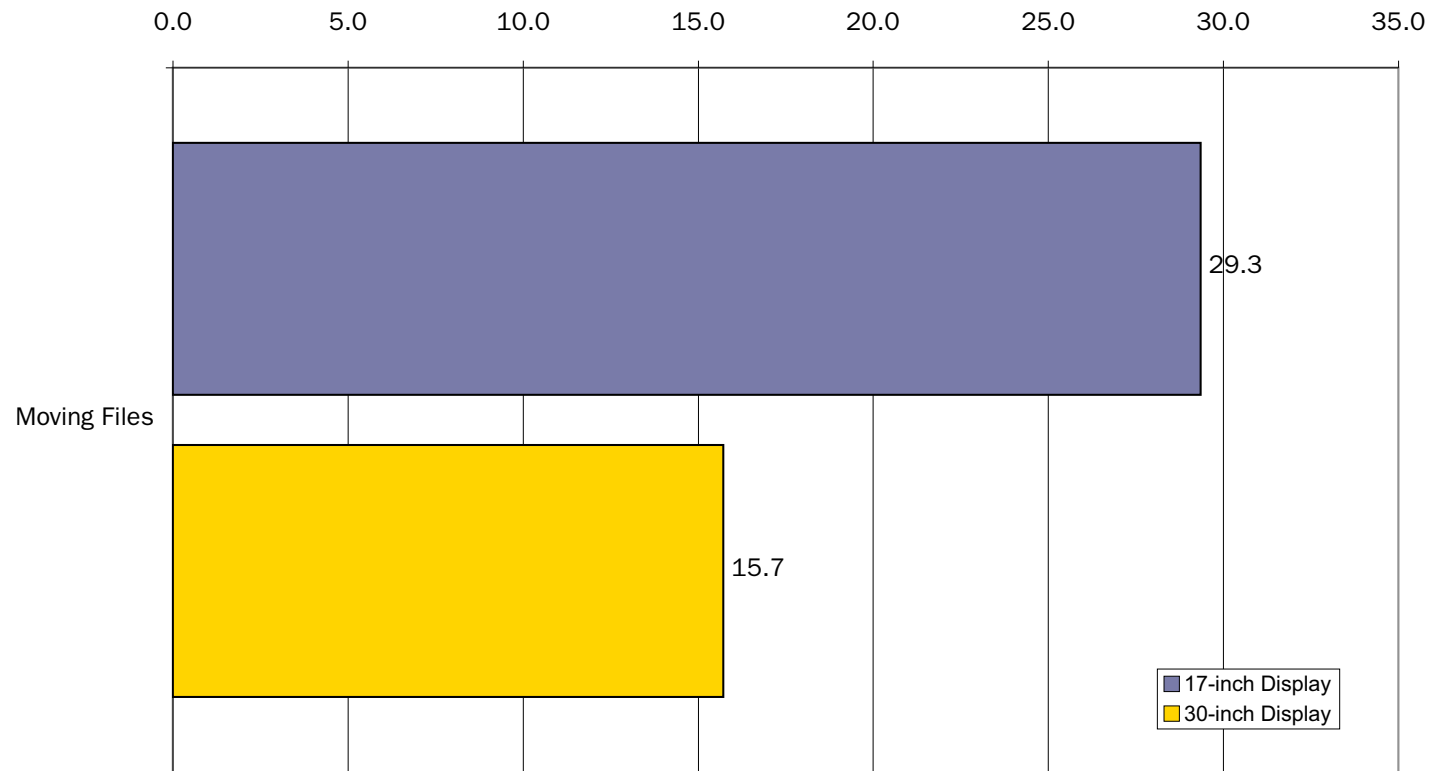
**Application Integration (Word/Excel)**



Time in seconds. Shorter is better

**Section: Results and Charts**

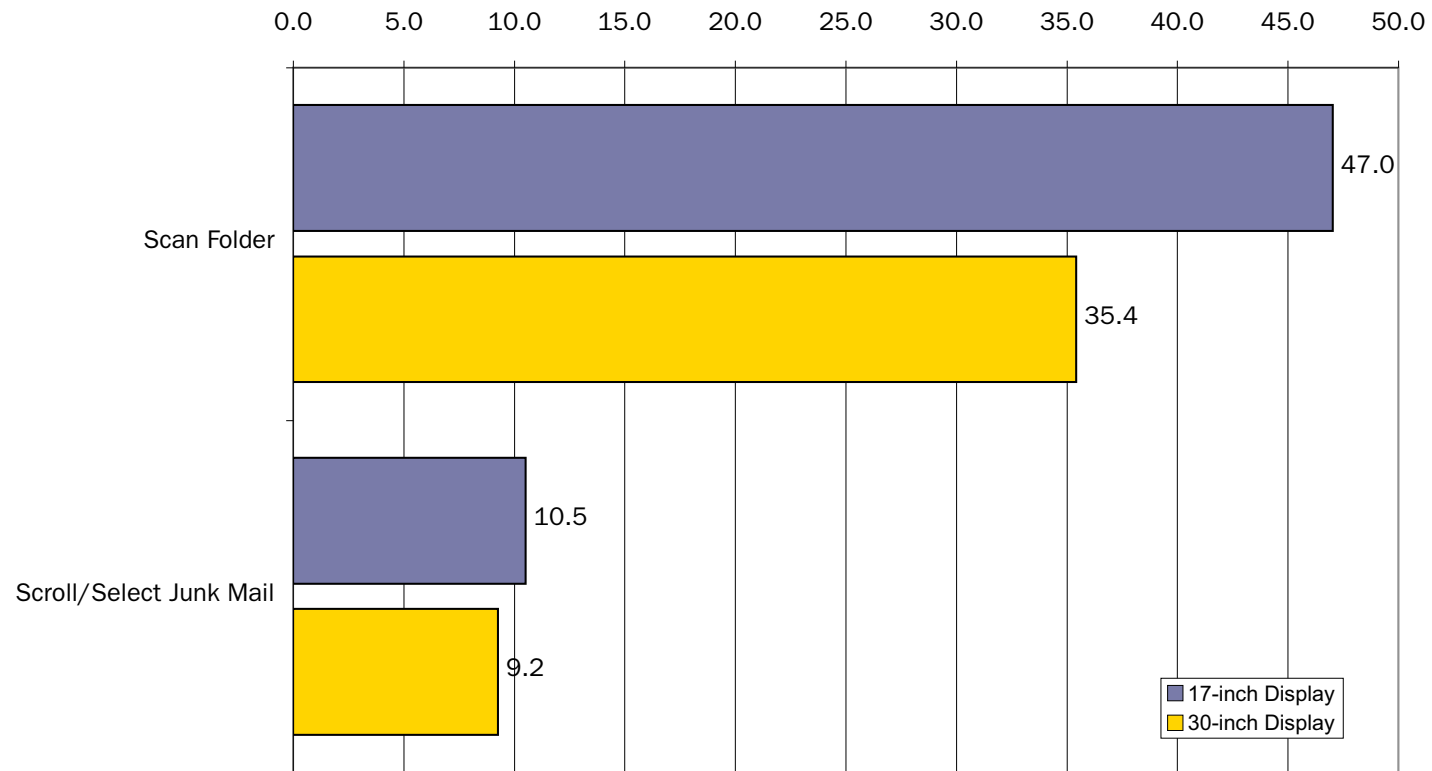
**Moving Files Between Folders (Finder)**



Time in seconds. Shorter is better

**Section: Results and Charts**

**Sorting 400 Junk Mail Messages**



Time in seconds. Shorter is better

**Section: Results and Charts**

## Digital Imaging: Complete Results

### Cleaning Up Digital Pictures

	17-inch Display	20-inch Display	30-inch Display
Clean up Image	52.3	37.8	25.8

### Checking High-Resolution Image for Sharpness

	17-inch Display	20-inch Display	30-inch Display
Check 8MP Image	27.2	18.4	7.2

### Drag and Drop Editing Between Multiple Images

	17-inch Display	30-inch Display
Layer 1	18.3	6.4
Layer 2	18.2	7.4
Layer 3	18.0	7.0

### Drag and Drop Editing Between Photoshop and Illustrator

	17-inch Display	30-inch Display
Combine/Adjust Elements	40.2	25.8

### Drag and Drop Editing Between Illustrator and InDesign

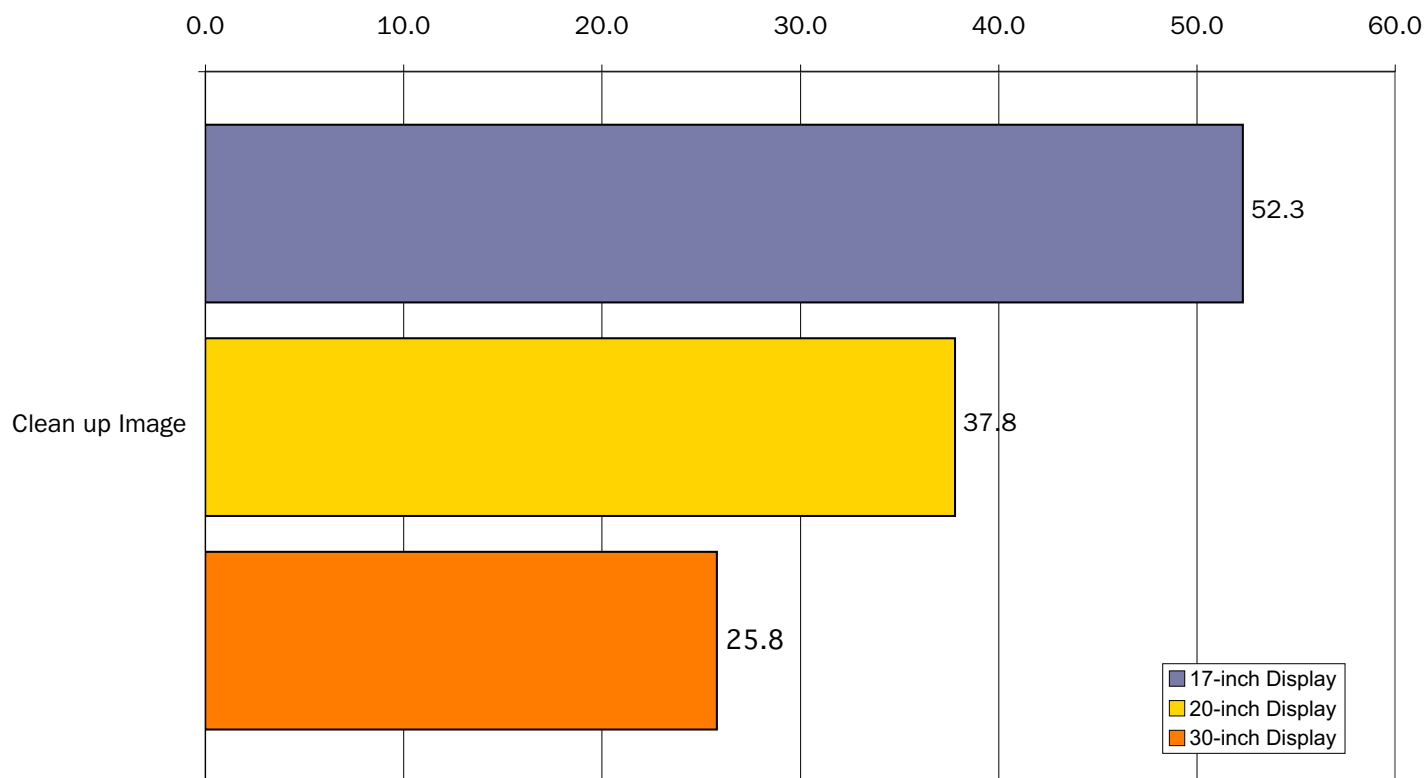
	17-inch Display	30-inch Display
Combine/Position Elements	38.5	21.8

Time in seconds. Shorter is better

### Section: Results and Charts

## Digital Imaging: Charts

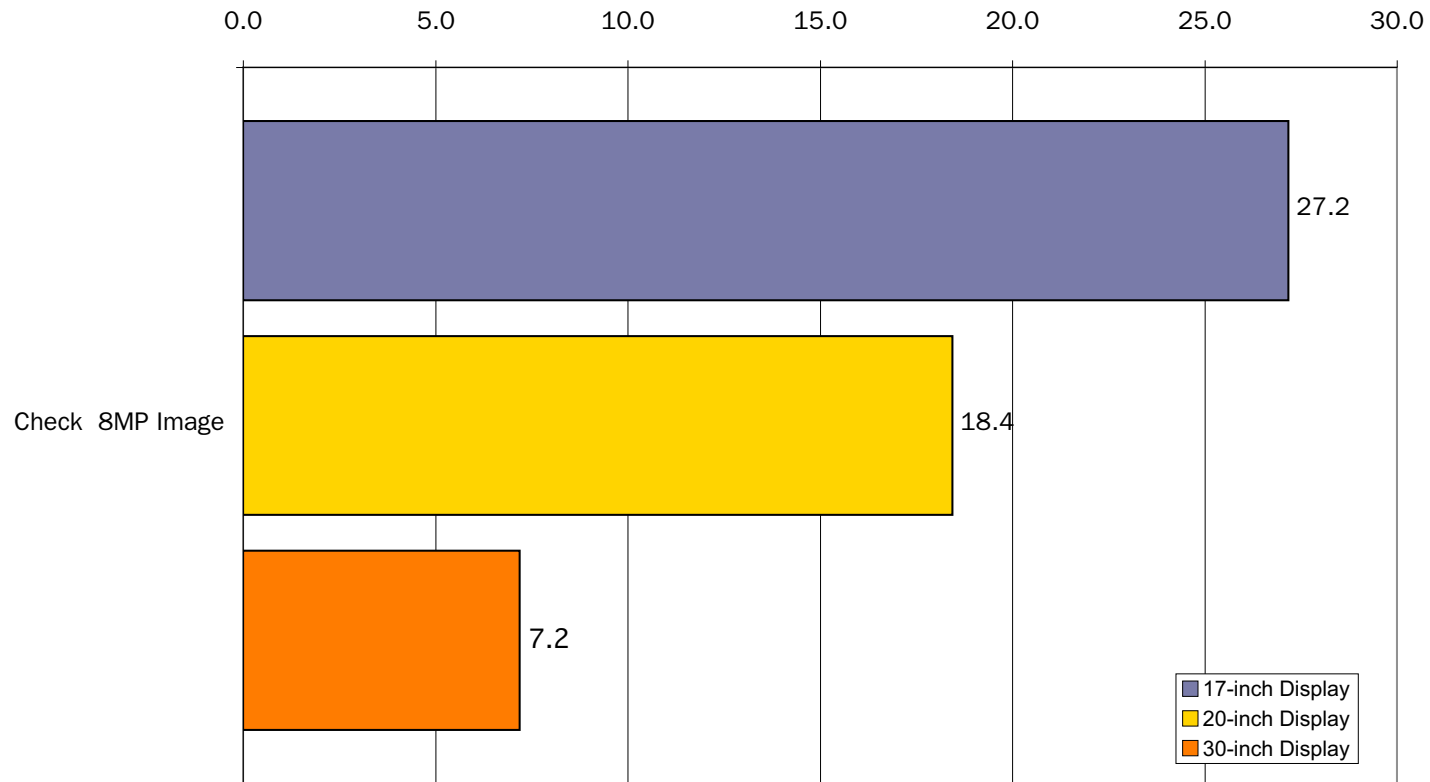
Cleaning Up Digital Pictures



Time in seconds. Shorter is better

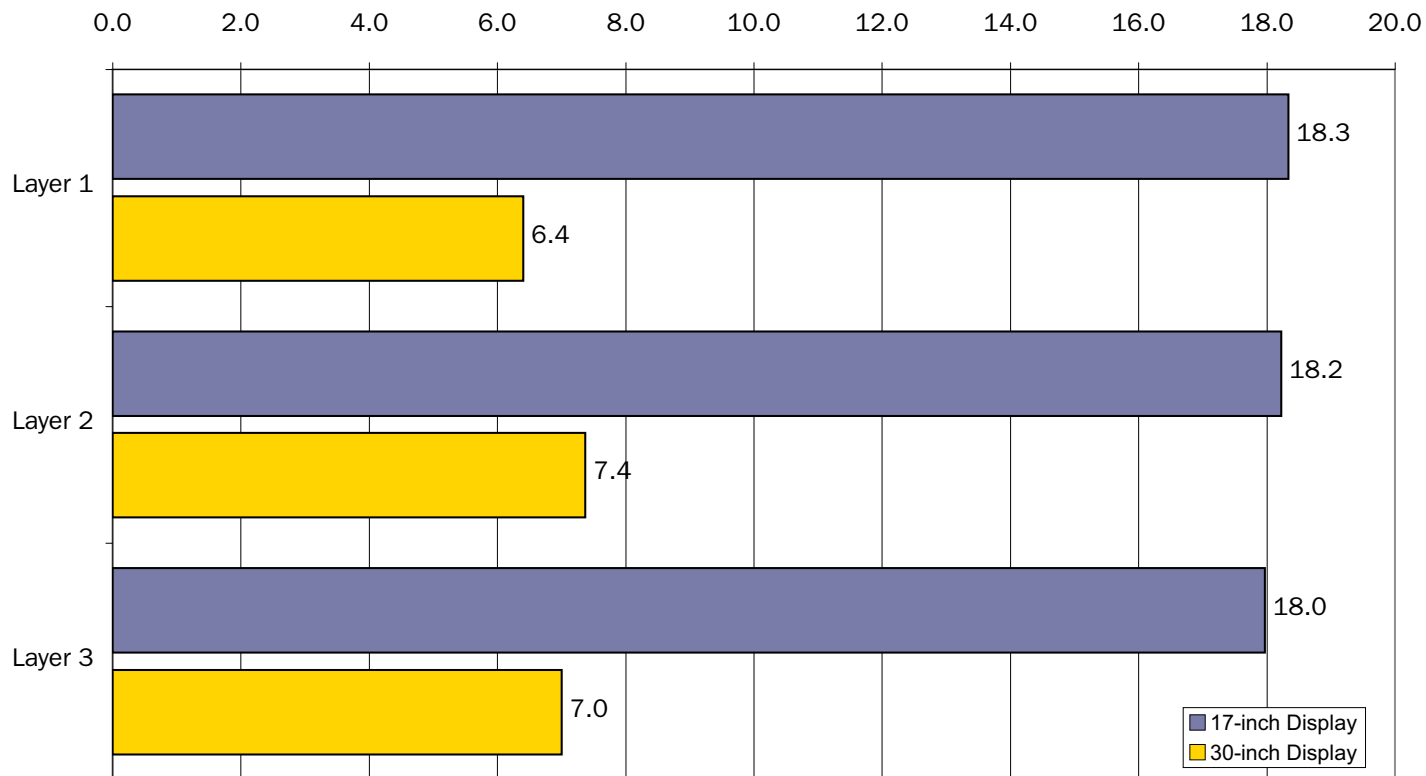


### Checking High-Resolution Image for Sharpness



**Section: Results and Charts**

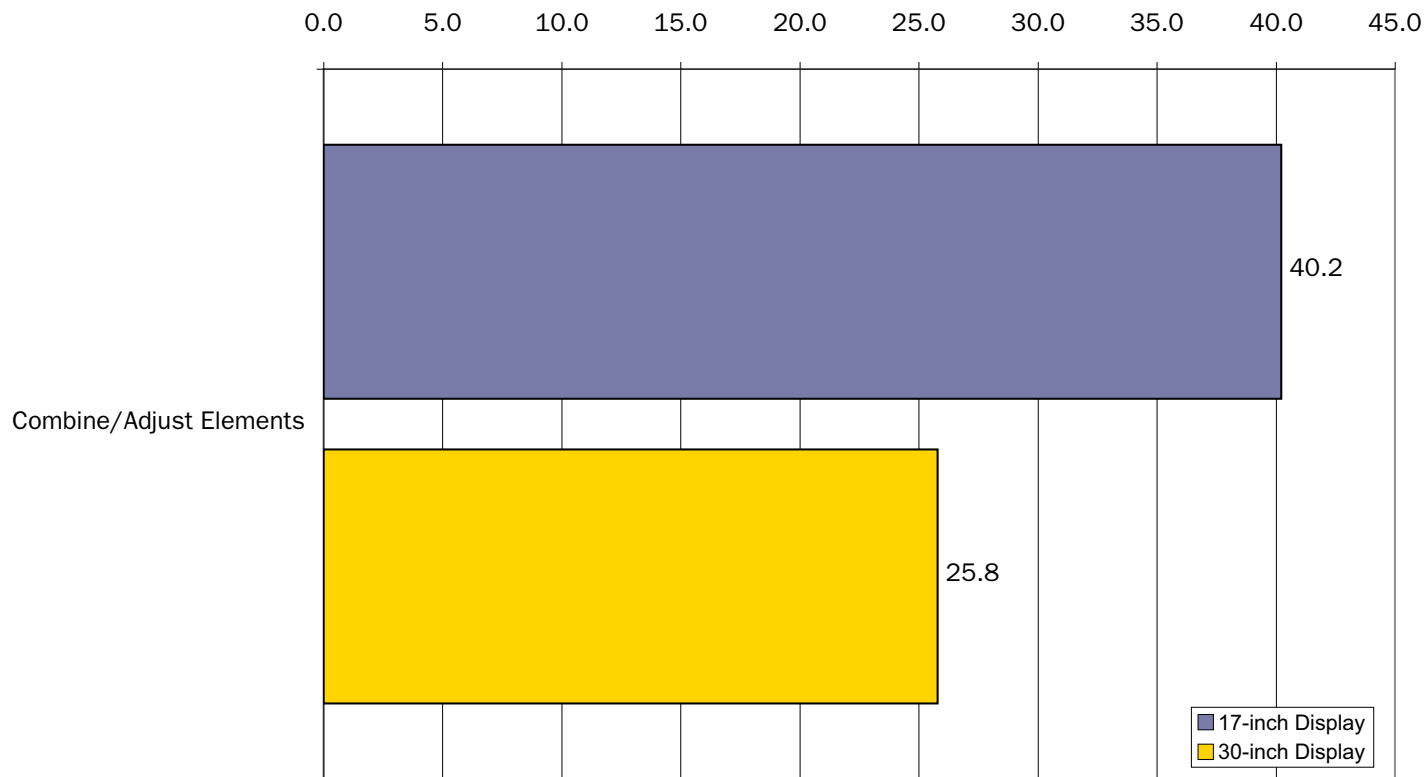
**Drag and Drop Editing Between Multiple Images**



Time in seconds. Shorter is better

**Section: Results and Charts**

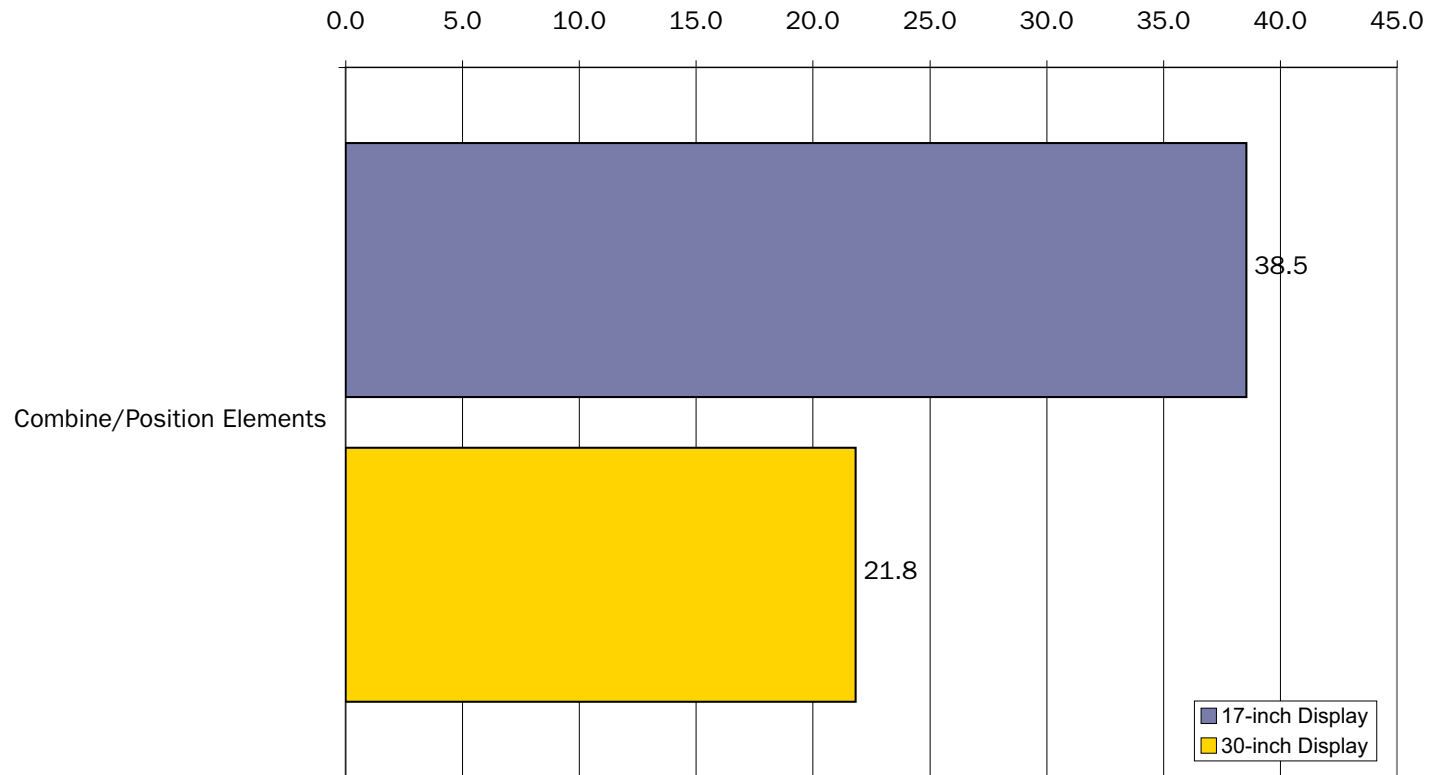
### Drag and Drop Editing Between Photoshop and Illustrator



Time in seconds. Shorter is better

**Section: Results and Charts**

**Drag and Drop Editing Between Illustrator and InDesign**



Time in seconds. Shorter is better

## Design & Publishing: Complete Results

### Formatting Text with Stylesheets (InDesign)

	17-inch Display	20-inch Display	30-inch Display
Apply Stylesheets	43.8	35.4	25.2

### Full-Page Editing (InDesign)

	17-inch Display	30-inch Display
Move/Position Element 1	15.0	7.3
Move/Position Element 2	20.5	7.1
<b>Total</b>	<b>35.5</b>	<b>14.4</b>

### Editing with Multiple Palettes (InDesign)

	17-inch Display	30-inch Display
Switching Palettes	23.7	14.2

### Editing with Multiple Windows (InDesign)

	17-inch Display	30-inch Display
Move Design Element	20.9	6.9

Time in seconds. Shorter is better

### Section: Results and Charts

**Drag and Drop Editing File Placement (Finder/InDesign)**

	<b>17-inch Display</b>	<b>30-inch Display</b>
Series 1	15.1	7.4
Series 2	16.1	7.7
<b>Total</b>	<b>31.1</b>	<b>15.1</b>

**Drag-and-Drop File Placement with Precision Positioning (Finder/InDesign)**

	<b>17-inch Display</b>	<b>30-inch Display</b>
Phase 1	14.9	6.0
Phase 2	31.4	19.1
<b>Total</b>	<b>46.3</b>	<b>25.0</b>

**Fine-Tuning Page Layout in QuarkXPress**

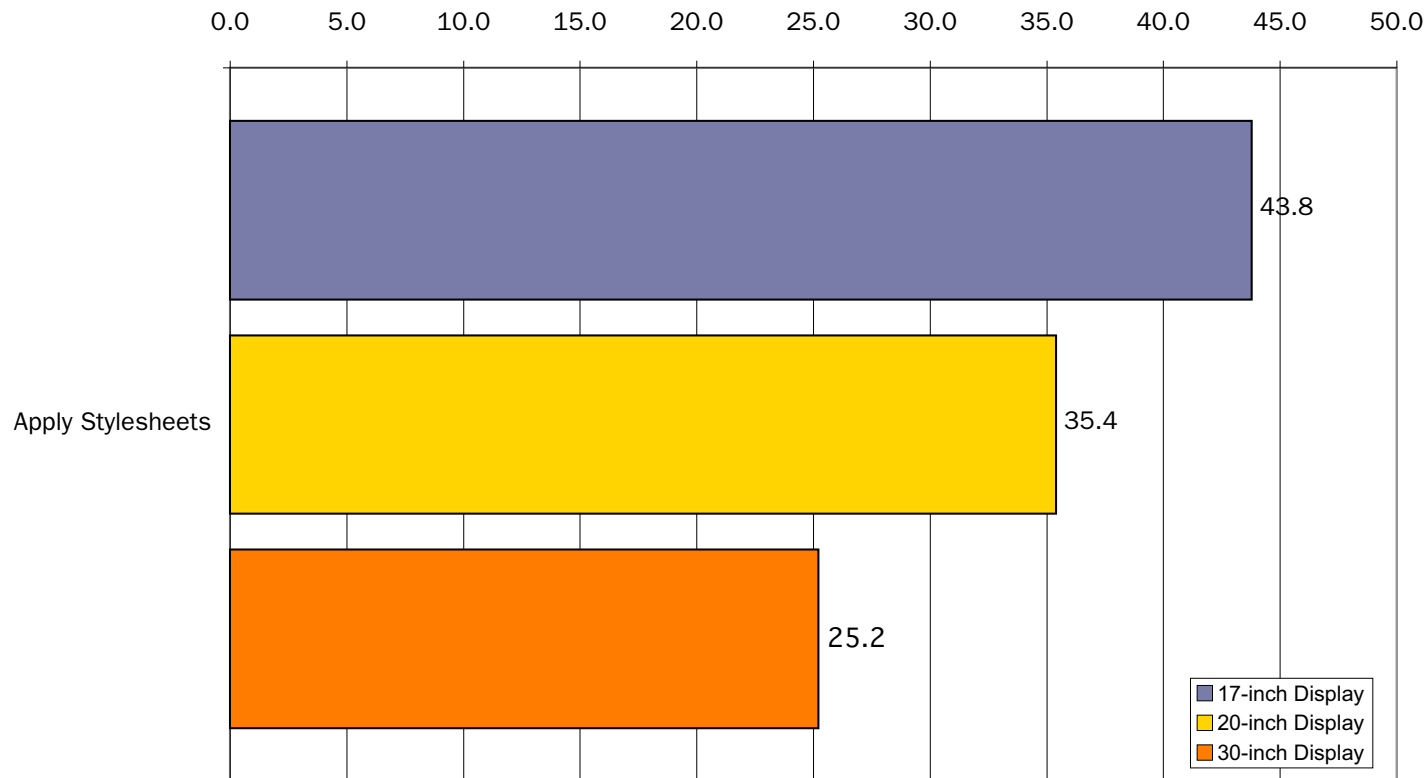
	<b>17-inch Display</b>	<b>20-inch Display</b>	<b>30-inch Display</b>
Position Elements	27.0	21.0	16.4

Time in seconds. Shorter is better

**Section: Results and Charts**

## Design & Publishing: Charts

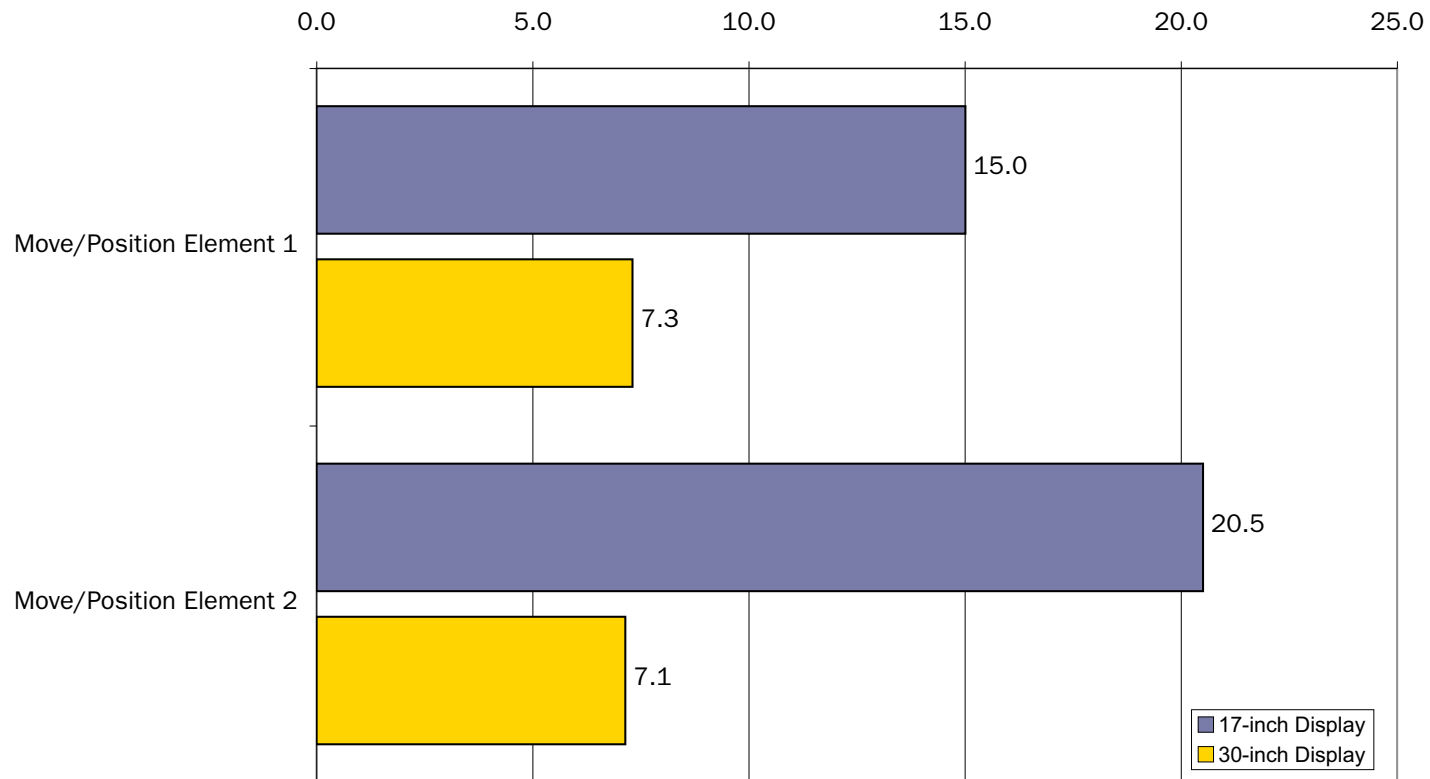
Formatting Text with Stylesheets (InDesign)



Time in seconds. Shorter is better

**Section: Results and Charts**

**Full-Page Editing (InDesign)**

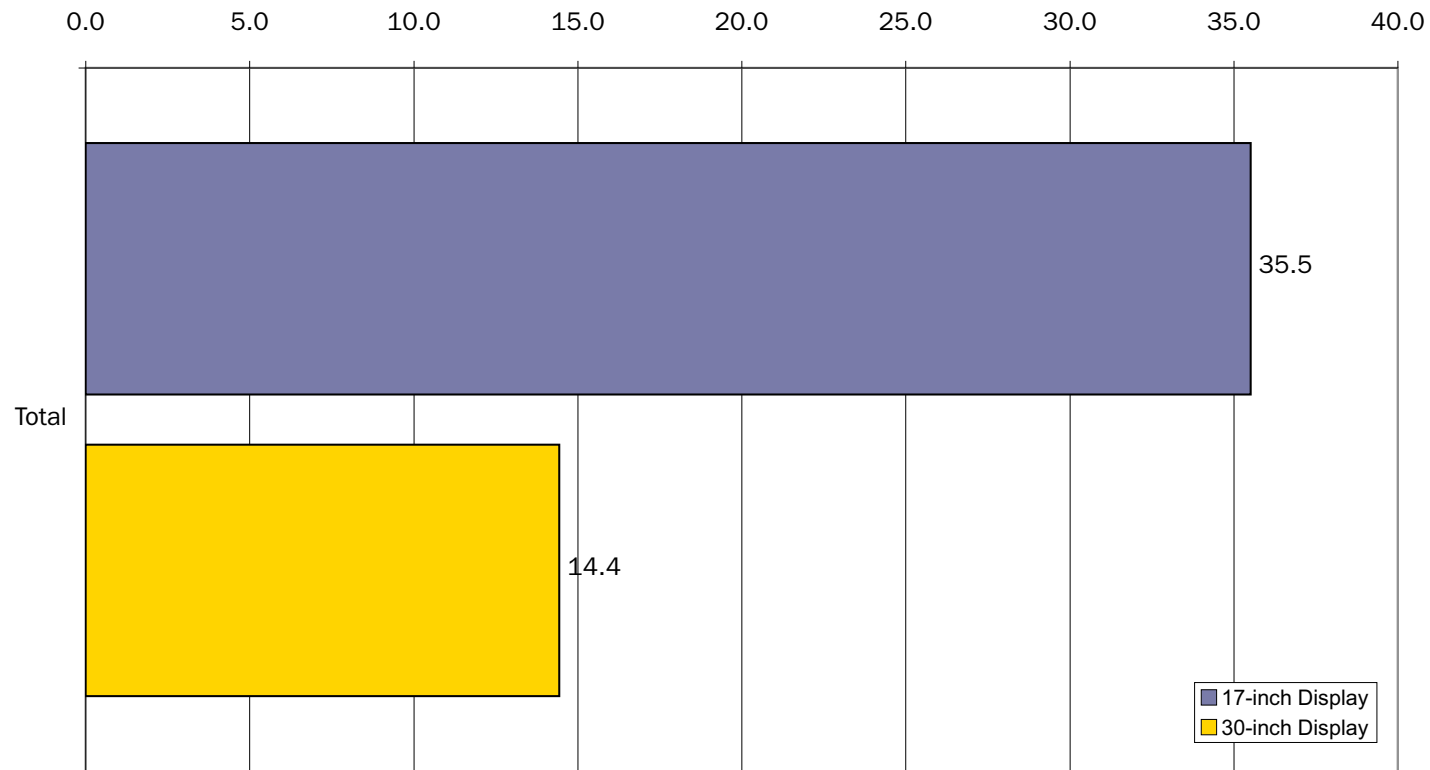


Time in seconds. Shorter is better

**Section: Results and Charts**



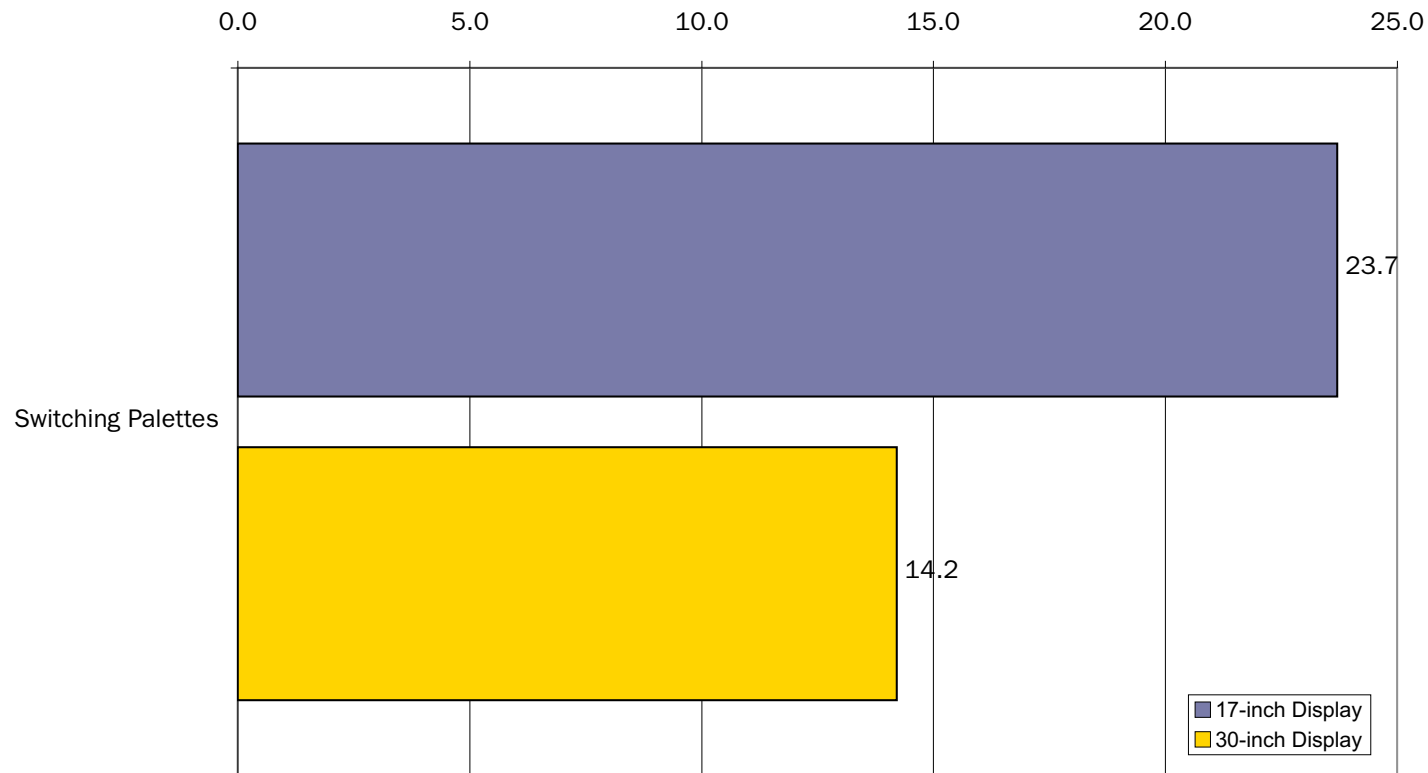
**Full-Page Editing (InDesign)**



Time in seconds. Shorter is better

**Section: Results and Charts**

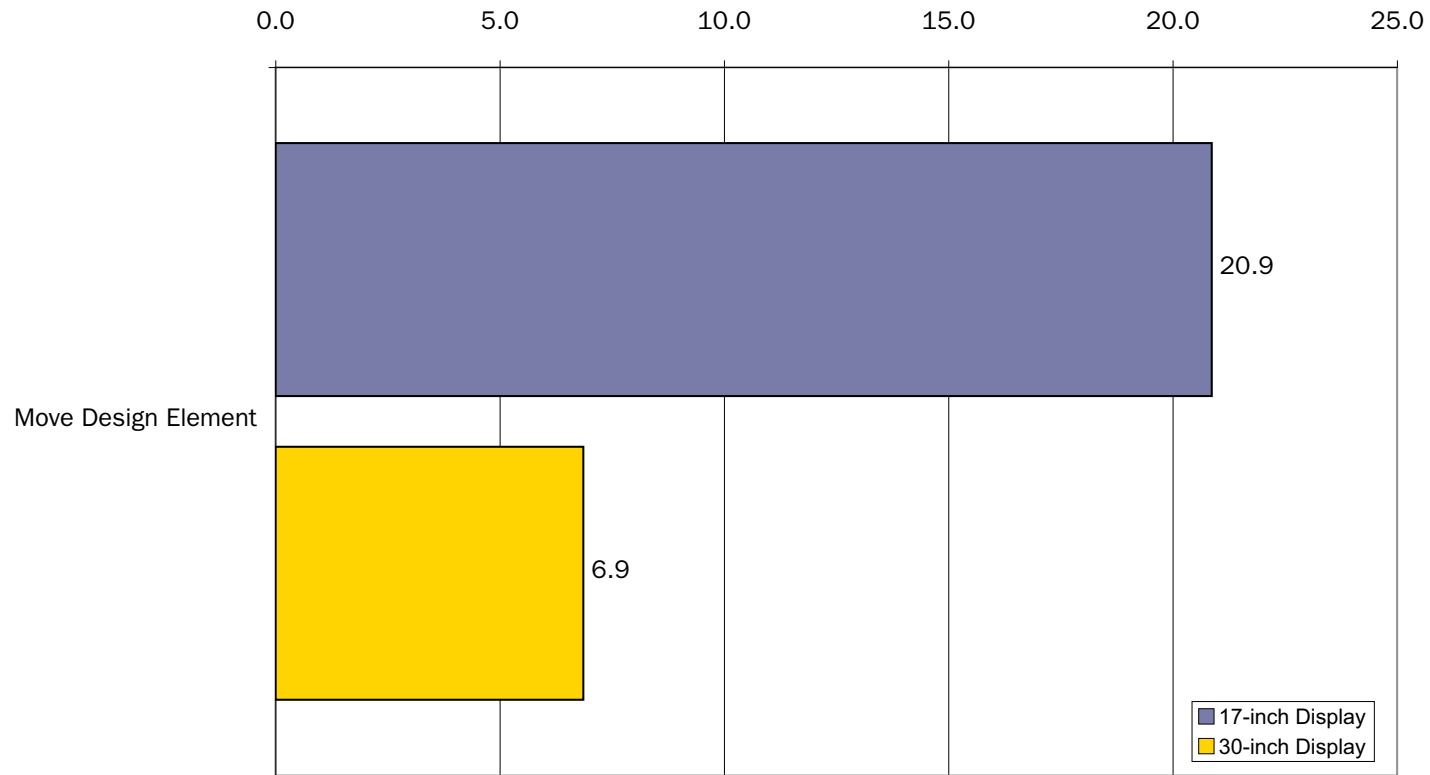
**Editing with Multiple Palettes (InDesign)**



Time in seconds. Shorter is better

**Section: Results and Charts**

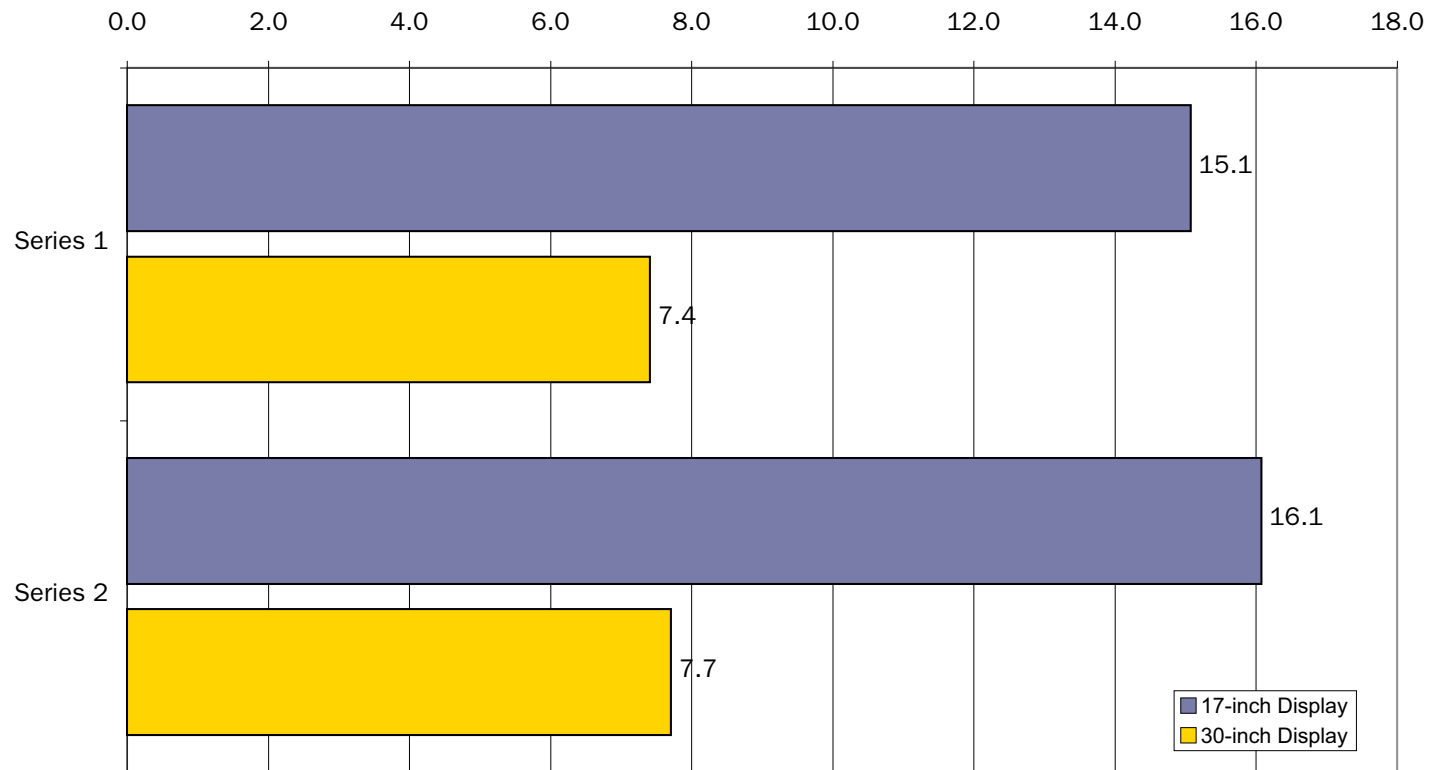
**Editing with Multiple Windows (InDesign)**



Time in seconds. Shorter is better

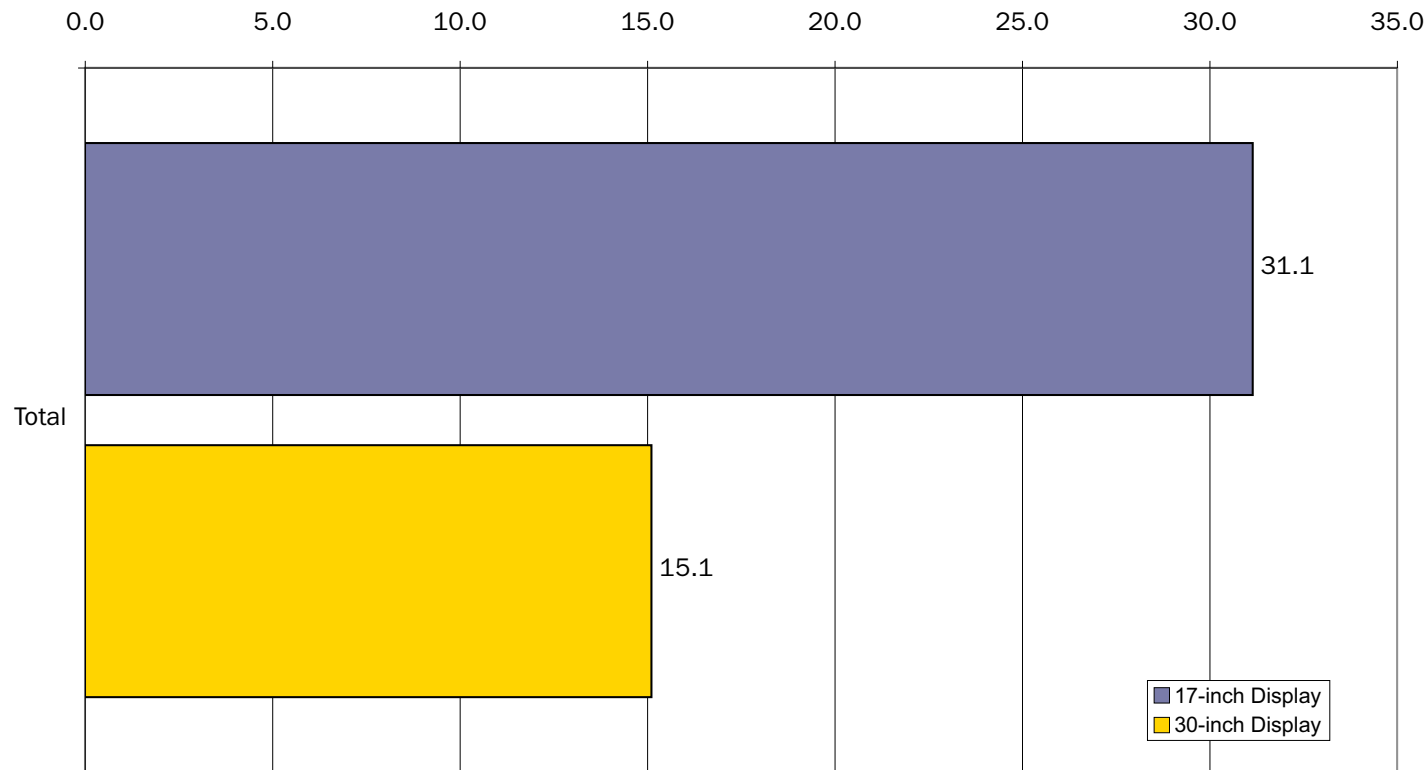
**Section: Results and Charts**

**Drag and Drop Editing File Placement (Finder/InDesign)**



Time in seconds. Shorter is better

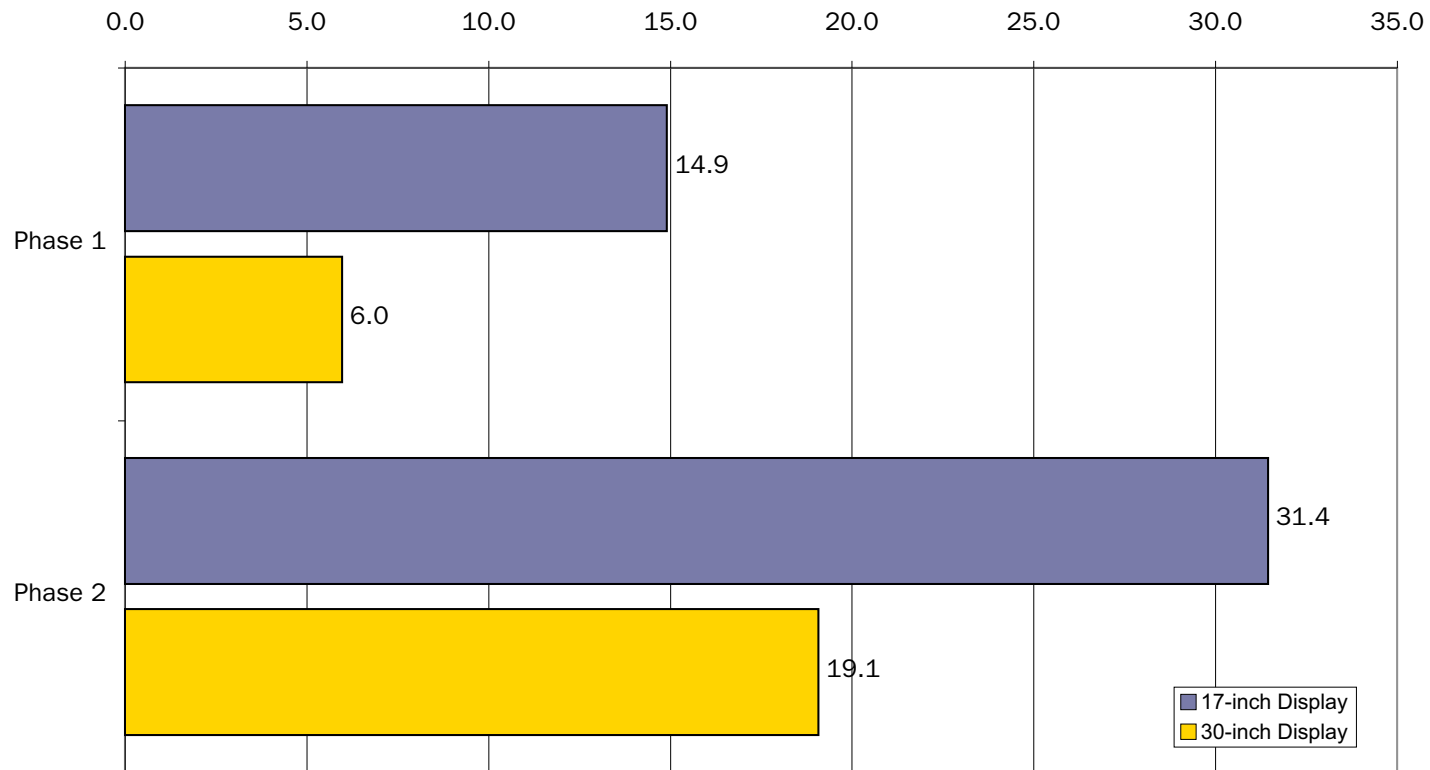
**Drag and Drop Editing File Placement (Finder/InDesign)**



Time in seconds. Shorter is better

**Section: Results and Charts**

**Drag-and-Drop File Placement with Precision Positioning (Finder/InDesign)**



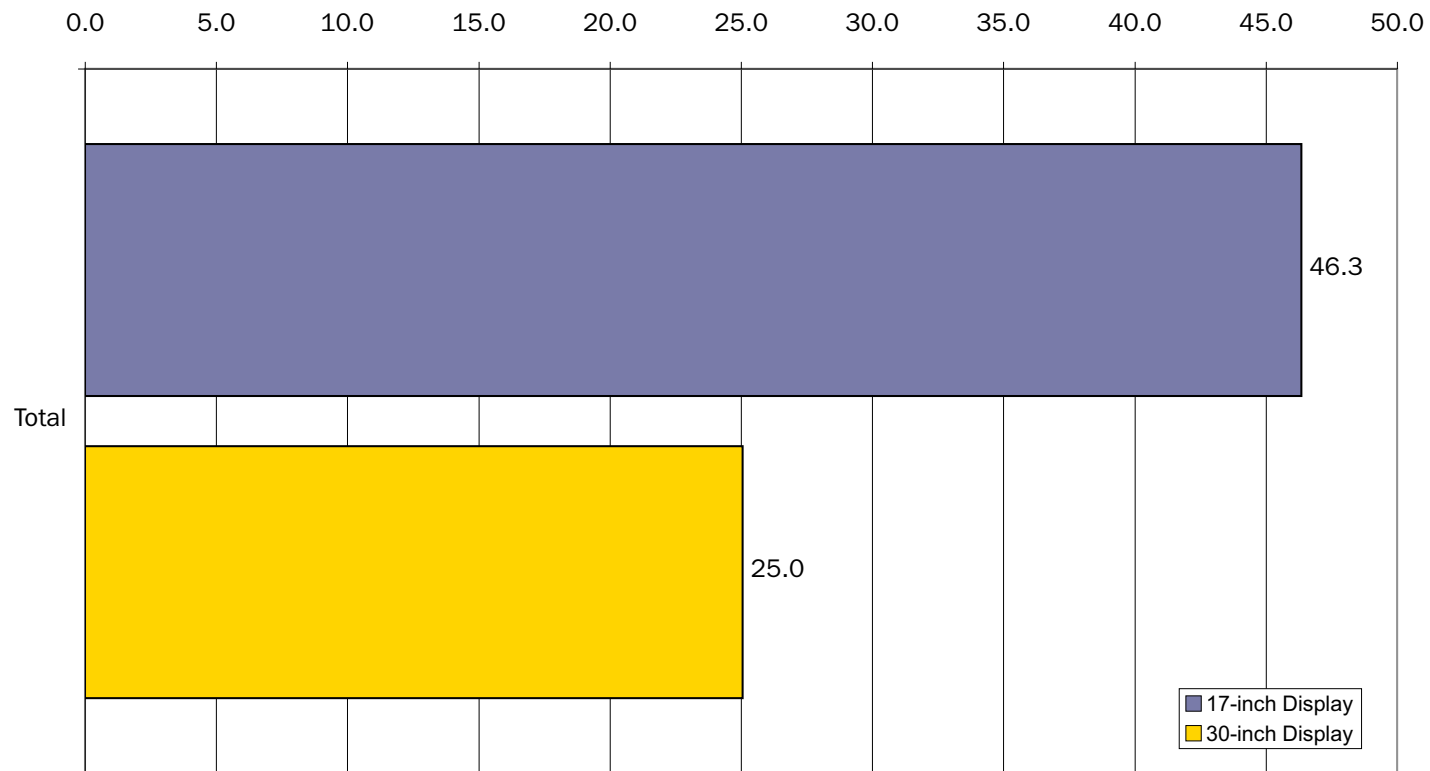
Time in seconds. Shorter is better

**Section: Results and Charts**

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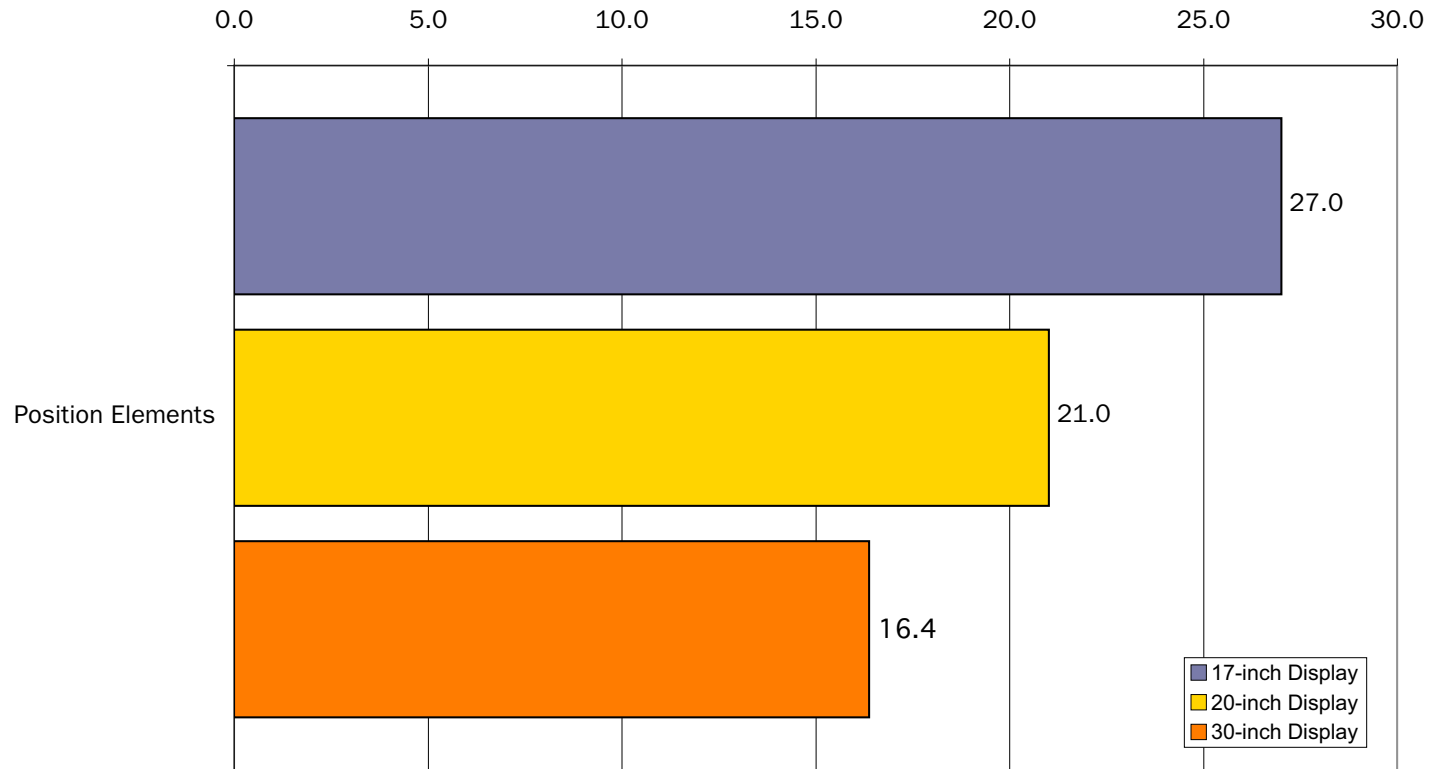
**Drag-and-Drop File Placement with Precision Positioning (Finder/InDesign)**



Time in seconds. Shorter is better

**Section: Results and Charts**

### Fine-Tuning Page Layout in QuarkXPress



Time in seconds. Shorter is better

**Section: Results and Charts**