3M Touch Systems

Selecting a High Performance Multi-Touch Display

June 5, 2012

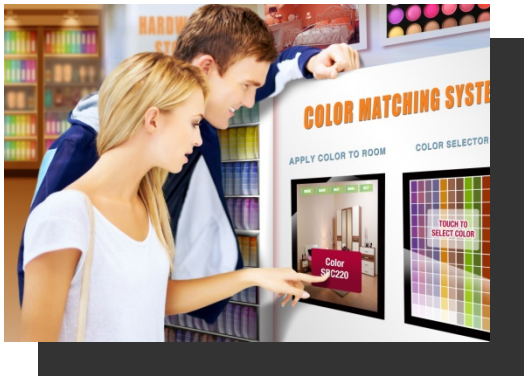
Today's Agenda

- Applications and Drivers for Multi-touch Display
- Unique Requirements of Multitouch Displays
    - Touchscreen Characteristics
    - Display Features
    - Industrial Design

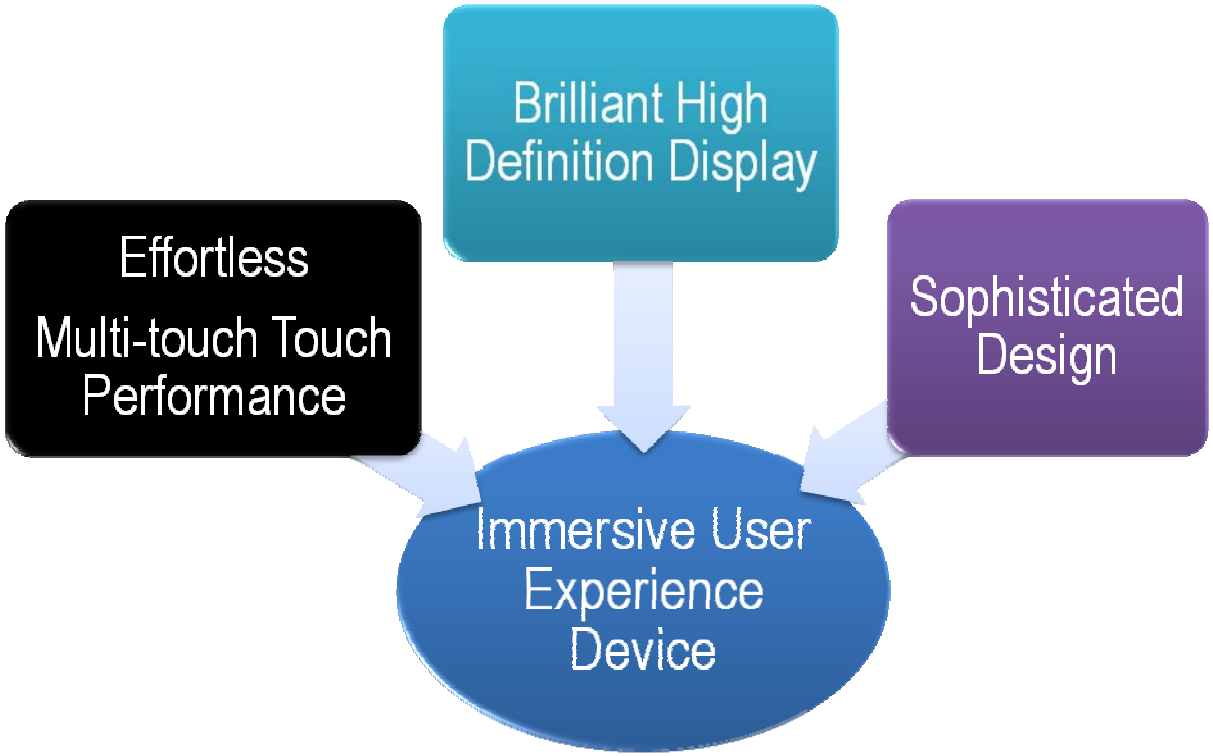
Multi-touch Display Applications and Drivers

- Single Touch Technologies – Transactional Efficiency
  - *Retail Point-of-Sale*
  - *Ticketing*
  - *Digital Signage*

- Multi-touch Displays – Unique Experiences
  - *Interactive Point of Purchase*
  - *Assisted Selling*
  - *Consumer Brand Experience*
  - *Customer Service*
  - *Interactive Signage*
  - *Exhibits*
  - *Gaming*

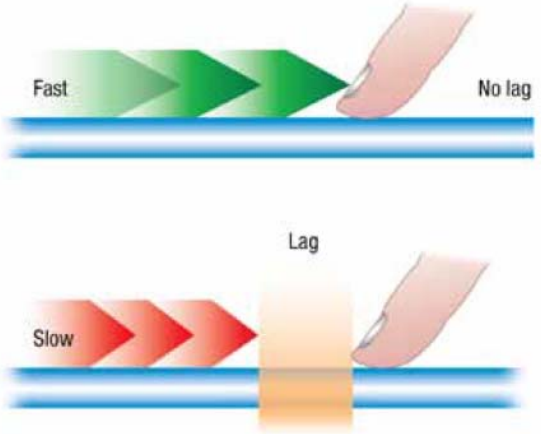


Key Drivers for Today's Multi-Touch Displays



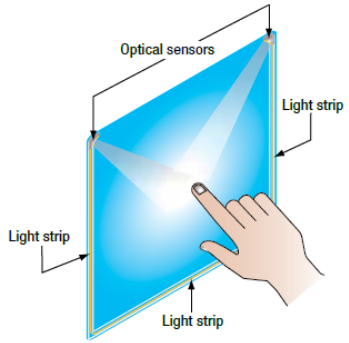
Key Touch Performance Characteristics

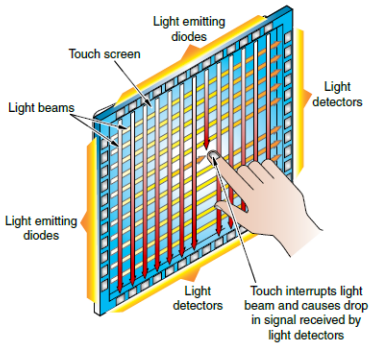
- # of Touches
  - *1 Touch – Button based interface for efficiency*
  - *2 Touch – Gesture Based interface*
  - *3+ Touches – Intuitive Natural User Interface & Collaboration*
- Touch Response
  - *Total Touch Response should be <20ms*
    - *Touchscreen Response*
    - *Operating System Delay*
    - *SW Rendering Time*
    - *Graphics Card Delay*

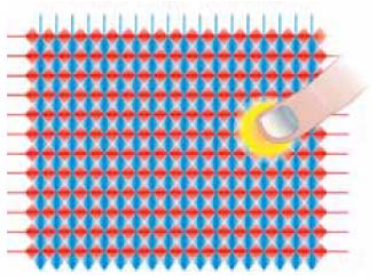


Touch Technology Options

- Optical Technology
  - *Common in Consumer All-In-One Displays*
  - *# of Touches: 2 to 6 touches*
  - *Typical Response Time: 12-20ms*
  - *Bezel Required*
  - *Scalable to over 100” displays*
- Infrared Technology
  - *Common in larger format displays*
  - *# of Touches: 2 to 32 touches*
  - *Typical Response Time: 12-20ms*
  - *Bezel Required*
  - *Scalable to over 100” displays*
- Projected Capacitive Technology
  - *Common in Consumer Handheld Devices*
  - *# of Touches: 2 to unlimited*
  - *Typical Response Time : 6 to 15ms*
  - *NO Bezel Required (Can achieve Flat Front Surface Design)*
  - *Scalable to at least 82” displays*







Key Display Features

Multi-touch content typically features high resolution images and HD video. The quality of the display itself is critical to ensure a positive interactive experience.

Display Resolution

- Full HD ensures images and text are sharp
- Critical for touch applications when users interact close to display (18")
- Creates a larger canvas for digital content; 97% more pixels than 720p.

Fast Refresh Rate

- 120Hz refresh rate provides crisp content even while in motion
- 2x faster than 60Hz industry standard
- Critical for smooth motion transitions while zooming and interacting with display

Ultra-Wide Viewing Angle

- Delivers brilliant content at nearly any angle
- Essential for multi-user applications and up-close interactions on a large-format display

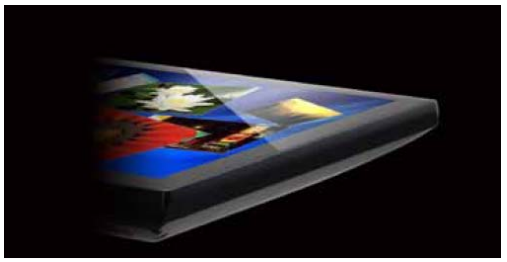
LED Backlight

- Allows for landscape, portrait, horizontal or vertical integration orientations without non-uniformity concerns that CCFL systems can exhibit
- Reduced environmental impact by eliminating mercury used in CCFL backlights
- Generally 20-30% less power consumption than CCFL backlights

Key Industrial Design Characteristics

Industrial Design impacts the overall look and feel of the environment as well as the usability of the multi-touch interaction

- Flat Front Surface
  - *Modern Sophisticated Look*
  - *Easy to Clean Surface*
  - *Full access to edges and corners of touchscreen*

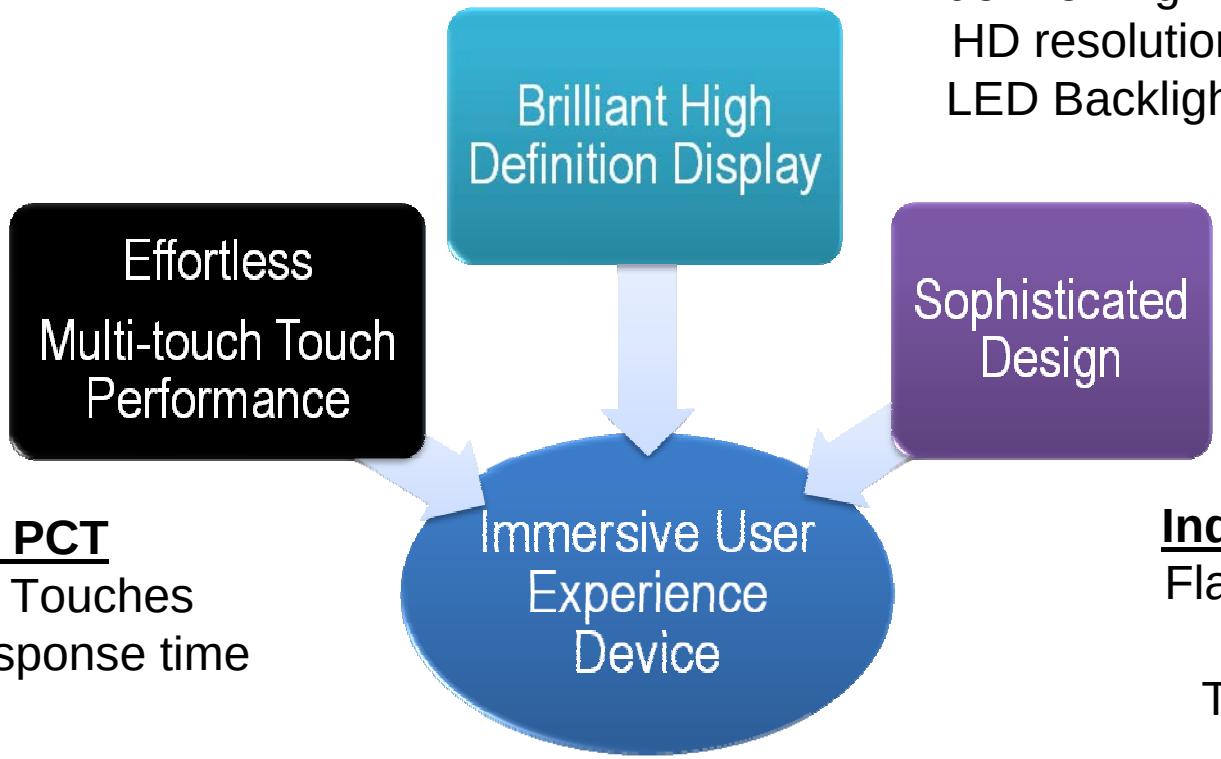


- Stable Adjustable Base
  - *Stability even more critical with multi-user and multi-touch interactions*
  - *Adjustability important for ergonomic and usability concerns*
  - *Cable management for clean look*

- Installation Flexibility
  - *Lightweight, thin displays with multiple mounting methods are critical*
  - *Orientation free installation (Portrait/Landscape & Vertical/Horizontal)*
  - *Thermal Management system to support all installation orientations*

Key Drivers for Today's Multi-Touch Displays

High End Display
Wide Viewing Angle
HD resolution
LED Backlight



3M PCT
20-40 Touches
6ms response time

Industrial Design
Flat Front Surface
Stable Base
Thermal Mgmt

3M™ Multi-Touch Displays

Desktop
(18.5” – 27”)

Chassis
(22” – 32”)

Come Visit 3M Booth 761 to experience 3M Multi-touch Displays