LXI Overview

February 14-16 2006

LXI tm
LAN eXtensions for Instrumentation

- **History**
  - ✓Not-for-profit Corporation
  - ✓Conceived by Agilent & VXI Technology
    - ❖Summer 04
  - ✓Incorporated Sept 13, 2004
  - ✓First meeting Nov 17-18, 2004
  - ✓September 2005 Version 1.0 Released
  - ✓First Certified Products Q1 2006
- **Membership Status**
  - ✓ >40 Members
- **Website**
  - ✓www.lxistandard.org

- **Membership Levels**
  - ✓$30k for Strategic Member (board / voting privileges)
  - ✓$10k for Participating Member (tech voting privileges)
  - ✓$5k for Associate Member (tech participant, no voting)
  - ✓$2500 for Informational Member
- **Primary Purpose**
  - ✓Promote the Development and Adoption of the LXI Standard
- **What Is It?**
  - ✓ An Open, Accessible Standard Identifying Specifications and Solutions Relating to the Functional Test, Measurement and Data Acquisition Industry

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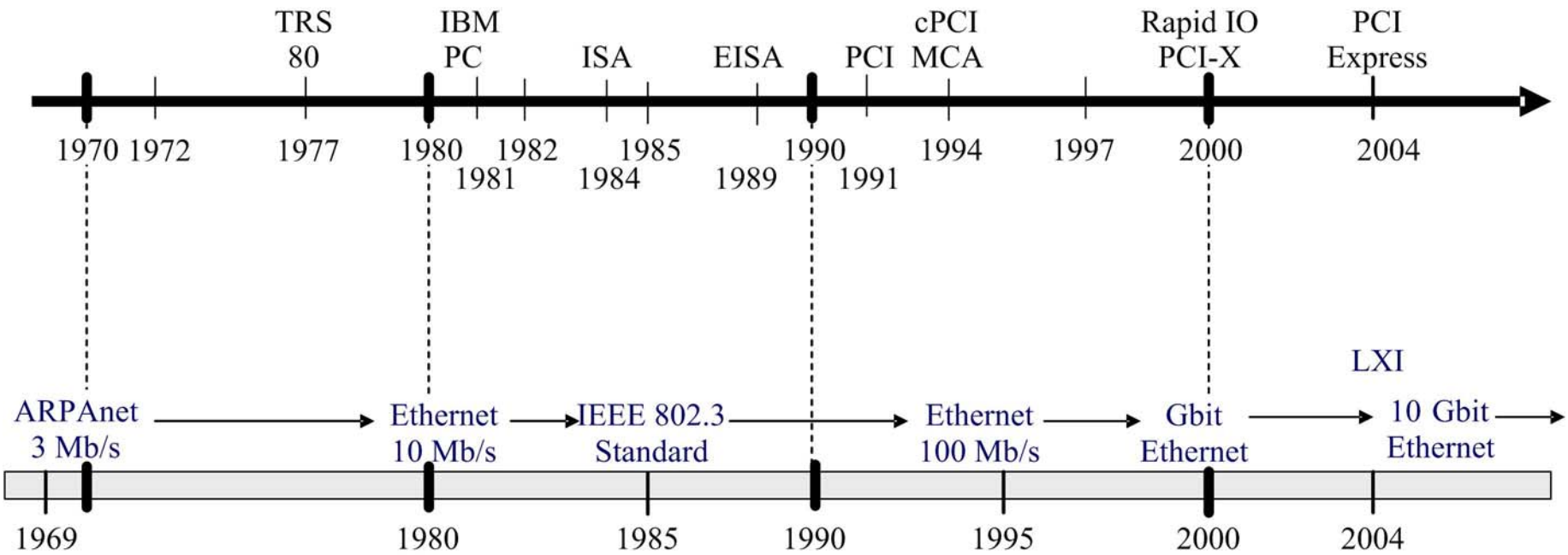
- **L**AN e**X**tensions for **I**nstrumentation
  - Addressing the Growing Need for a High-speed Instrumentation Interface Standard

- **Key Advantages of LXIbus**
  - High-speed I/O
  - Instrument Grade Measurements
  - Compact / Flexible Packaging
  - Tight Device Synchronization
  - Standard API
  - Modularity
  - Resolves Vanilla Ethernet Limitations
  - Ideal for Small to Medium Size Applications

❖Standard Ethernet I/O is Basis for LXI

- Based on IEEE802.3 Ethernet Technology
  - Continually Evolving
    - 10Mb → 100Mb → 1Gb → 10Gb → +++
  - Backward Compatibility
  - Standard Connections
- Most Widely Used Communications Interface
  - Available on Virtually Every Computer
  - Independent of OS Implementation
  - Built-in Interfaces
    - Eliminates Cost of Interface Card



Longevity of Ethernet

❖Key Functional Areas of LXI Specification

- Physical
- Device Synchronization & LAN-based Triggering
- Module-to-Module Communications
- Hardware Triggering
- Programmatic Interface (Drivers)
- LAN
- WEB Interface

❖Class Structure Defines Levels of Compliance

- **Class C (Minimum Requirement for Certification)**
  - ✓LAN Discovery
  - ✓LAN Specifications
  - ✓Web Interface
  - ✓Physical
- **Class B**
  - ✓Synchronization / IEEE1588
  - ✓Full Class C Compliance
- **Class A**
  - ✓Trigger Bus Hardware Triggering
  - ✓Full Class B & Class C Compliance

- **Physical**
  - ✓ Group Chair
    - ❖ David Poole
    - ❖ Aeroflex
  - ✓ Functional Responsibilities
    - ❖ Power / Electrical
    - ❖ Physical Layout
    - ❖ Indicators
- **Local Area Network**
  - ✓ Group Chair
    - ❖ Nick Barendt
    - ❖ VXI Technology, Inc
  - ✓ Functional Responsibilities
    - ❖ Discovery
    - ❖ IP Configuration
    - ❖ Interoperability

- **Timing and Synchronization**
  - ✓ Group Chair
    - John Eidson
    - Agilent Technologies
  - ✓ Functional Responsibilities
    - IEEE-1588
    - LAN Messaging
    - Hardware Synchronization
- **Programmatic Interface**
  - ✓ Group Chair
    - Bob Clemmons
    - Aeroflex
  - ✓ Functional Responsibilities
    - API
    - Driver Recommendations
    - Syntax

- **Wired Trigger Interface**
  - ✓ Group Chair
    - ❖ Art Graffmans
    - ❖ VXI Technology
  - ✓ Functional Responsibilities
    - ❖ Input / Output Configurability
    - ❖ Wired-OR
    - ❖ Shielding / Cabling
- **WEB Browser**
  - ✓ Group Chair
    - ❖ John Ryland
    - ❖ Keithley Instruments
  - ✓ Functional Responsibilities
    - ❖ HTML Browser Definition
    - ❖ Minimum Configuration Requirements
    - ❖ Password Protections