Timesys Embedded Board Farm (EBF)

Shared Remote Development and Debugging = Productivity Gains, Accelerated Development and Testing, Shorter Time-to-market

Rapidly expanding consumer and business markets such as mobile, Internet of Things (IoT), industrial IoT and others are driving explosive growth in devices incorporating open source software.

For device makers, hardware access can be a bottleneck that limits device development and testing productivity, lengthens time-to-market, and drives up product development costs.
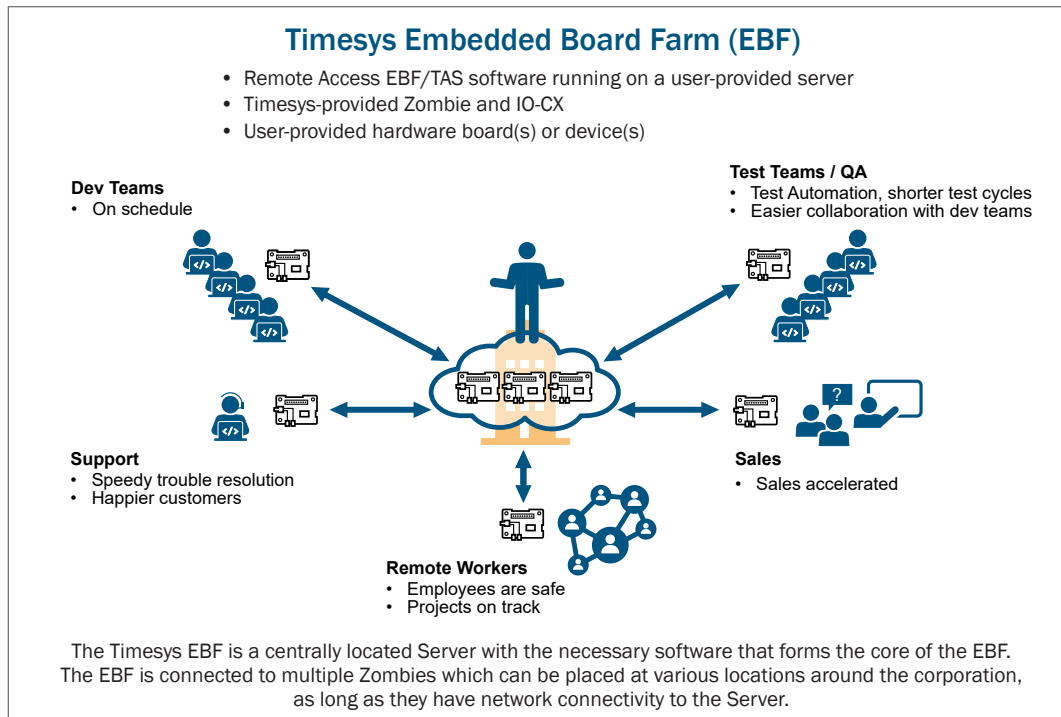
Market pressures force application and system developers to test their software against a widening range of devices running both their current and legacy versions of operating systems. A company producing embedded hardware and software-based products typically faces many challenges, including:

- Limited access to boards for development teams
- Fragmented, redundant test infrastructure and automation
- Low availability of hardware access for demos and customer evaluation
- Inability to provide short-term board access to sustaining and support engineers for reproducing problems
- Limited availability of versions of boards

These problems become worse for distributed teams. Whether spread geographically, within the same building, or among different companies, distributed teams face the additional challenges of managing hardware logistically (shipment and tracking), which usually means low utilization of hardware resources.
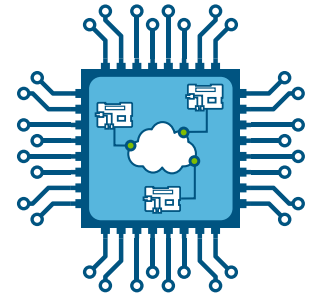
- ✅ Remote Board Access with Live Streaming
- ✅ Test Automation Infrastructure
- ✅ Centralized Board Inventory Management
- ✅ Easy to Demo
- ✅ Efficient Use by Sustaining and Support Team
- ✅ Eliminated Hardware Access Bottlenecks

Timesys Embedded Board Farm (EBF)

- Remote Access EBF/TAS software running on a user-provided server
- Timesys-provided Zombie and IO-CX
- User-provided hardware board(s) or device(s)

Dev Teams
- On schedule

Test Teams / QA
- Test Automation, shorter test cycles
- Easier collaboration with dev teams

Support
- Speedy trouble resolution
- Happier customers

Sales
- Sales accelerated

Remote Workers
- Employees are safe
- Projects on track

The Timesys EBF is a centrally located Server with the necessary software that forms the core of the EBF. The EBF is connected to multiple Zombies which can be placed at various locations around the corporation, as long as they have network connectivity to the Server.

A Universal Tool for High Efficiency

The Timesys EBF enables all members of the project team to efficiently share hardware boards — no matter where the team members are located globally. Now, software developers, Quality Assurance, sustaining engineering, support, and sales can have access to the hardware they need, when they need it.

The EBF provides value throughout the entire product life cycle by enabling embedded hardware and software engineering teams to reduce time-to-market (TTM), lower project budget, and improve product quality.

EBF Impacts: Reduces Project Budget, Shortens Time-to-Market, Improves Quality

- **Shortened product development schedule:** Reduce time-to-market by sharing software and working prototypes with test teams early
- **Resource leveraging:** Combined with continuous integration techniques, provides a high-efficiency continuous testing and smoke testing infrastructure for automated test labs, including stress and load tests
- **Cost efficiency:** Reduce the number of boards that must be built at every re-spin which directly saves money in the project budget
- **No hardware bottlenecks:** Save budget by allowing access to boards from any location via network
- **Remote team collaboration:** Provide all teams with access to the same resources globally for development, test, quality control, debugging
- **Productivity gains:** Deliver demos by sales and marketing, reproduce field problems by engineering
- **Easier inventory management:** Manage multiple products, product versions, and generations from a centralized dashboard, simplifying inventory management and providing timely access to hardware boards for sales, R&D, sustaining and support engineering
- **Strong security:** Ensure privacy and security because EBF is private, behind your firewall, and completely in your team's control with powerful centralized administration features

The Timesys EBF is architected with Rest APIs, so any Test Automation framework can be plugged in easily.

Timesys Remote Access EBF features

- Centralized management
  - Device-specific dashboards
  - Admin dashboards
  - User management
- Access via a browser
  - Chrome, Internet Explorer 11, Firefox, Safari
- Multi-user support (login controlled)
  - Enables multiple users to connect into the EBF simultaneously, and allows each logged-in user to control different boards
- Rest API for test automation
  - Example code and documentation
  - Integration with Fuego, Squish, Timesys Test Project (tstp)
- Remote power cycle
  - Support for different power modules: network, GPIO, custom
- Expansion capability
  - I2C, USB buses, GPIO pins
- Built-in App/Test server
  - Acts as a host on your DUT network
- Console access
  - Serial, network, multiple
  - Support for different languages
- Console sharing
  - Command-line access
- Hot plugs
  - USB, Ethernet insertion and removal events
- Boot medias
  - SD card (multiple partitions), USB, network Boot (TFTP/NFS)
- SD mux
  - Use special SD card mux to eliminate manual SD card programming and insertion
- USB mux
  - Update flash from USB storage utilizing USB mux to eliminate manual copying files to USB and insertion
- Image/file management
  - Upload and download, single or multiple files
- Remote monitoring
  - Video streaming
  - Audio streaming
  - Image capture
- Board access to/from a defined network resource
  - Viewer/logger server

Zombie

Allows remote access to up to four boards, giving users full control of the boards as if they were physically located next to the engineers.

Specifications
- 3.25" x 17" x 9.25" (with a 19" wide faceplate for rack mounting)
- 5V 4A power supply
- 4 Device/board USB serial ports
- 4 IO-CX USB data ports
- 4 IO-CX I2C communications ports
- 8 APP USB ports
- 7port gigabit (max throughput 480) to Zombie/app
- 2x100mb Ethernet
- Compatible with USB webcams

IO-CX

Connects each board to a Zombie. The IO-CX extends the capability for a Zombie to control each board by adding SD card mux, USB mux, hot plug, I2C, and GPIO.

Specifications
- 5" x 7" x 3.75"
- 3.3V 2.5A power supply
- Full sized SD card slot
- Micro SD ribbon cable (both can be used with a micro-to-full SD adapter to accommodate the other size)
- 6 GPIO pins
- Up to 4 hotplugs for USB or Ethernet
- I2C pass-through line

To learn more about the Timesys Embedded Board Farm, email us at **sales@timesys.com** or call us at **1.866.392.4897** (toll-free) or **+1.412.232.3250** to schedule a complimentary, no-obligation consultation.

timesys

Headquarters / North America Office
1905 Boulevard of the Allies,
Pittsburgh, PA 15219 UNITED STATES
1.866.392.4897
sales@timesys.com

EMEA Office
ul. Palmowa 1A,
62-081 Chyby POLAND
+48.53.733.8080
emea@timesys.com

APAC Office
3rd Floor, Jaag Homes, Achyutha Square,
No. 3, MTH Road, Villivakkam,
Chennai, Tamil Nadu – 600 049 INDIA
+91.0124.4299897
apac@timesys.com