

## Built-In Test (BIT) Firmware and Software



Concurrent Technologies Built-In Test (BIT) software provides a range of self-test diagnostics which allows extensive live in-system testing. It is available for a range of Concurrent Technologies single board computers spanning various system architectures, e.g. VPX, VME, VXS and CompactPCI®. The BIT software is optional and is available in two parts: the first part is implemented by on-board firmware and provides

standalone diagnostics; the second part is an Operating System (OS) specific package (e.g. Linux) which provides run-time diagnostics that can execute alongside the application. The combination of these two parts can provide 95%, or greater, test coverage for each board. Contact Concurrent Technologies for the latest range of boards and Operating Systems supported.

### HIGHLIGHTS

#### Concurrent Technologies Built-In Test (BIT)

- Available for a range of Concurrent Technologies boards utilizing Intel® processors:
  - commercial and industrial
  - ruggedized air-cooled
  - ruggedized conduction-cooled boards
- Range of BIT support:
  - Power-on BIT (PBIT)
  - Initiated BIT (IBIT)
  - Continuous BIT (CBIT).
- Test coverage 95% or greater (PBIT+CBIT+IBIT):
  - comprehensive fault codes
- Test suite functions are board dependent

#### Power-on BIT

- Integrated into BIOS POST
- Results stored in EEPROM and available to OS
- Available only as a board firmware option:
  - part number FW PBT/nnn

#### Stand-alone Initiated BIT Console

- No Operating System (OS) required
- Operates over serial console
- Available only as a board firmware option:
  - part number FW PBT/nnn
  - suitable for any OS

#### Continuous BIT

- Specific to OS
- Stored results available to applications
- CPU remains interruptible and pre-emptable
- Does not disconnect external interfaces
- Remote operation via SSL network connection
- Optionally available for the specified Operating System:
  - part number SW BIT/nnn
  - firmware BIT must be available on hardware

#### Operating System Initiated BIT Console

- Specific to Operating System
- Interactive test execution
- Remote operation via SSL network connection
- Optionally available for the specified Operating System:
  - part number SW BIT/nnn

#### Operating Systems Supported

- Linux and VxWorks (board dependent)
- Contact your local sales office for the latest Operating System support

#### Boards Supported

- Concurrent Technologies provide a range of ruggedized and commercial single board computers are available, supporting Intel® Core™ i7, Intel® Core™ 2 Duo and Intel® Atom™ processors

## Concurrent Technologies Built-In Test (BIT)

- Built-In Test (BIT) available for a range of Concurrent Technologies boards:-
  - commercial and industrial boards
  - ruggedized air-cooled boards
  - ruggedized conduction-cooled boards
- range of BIT support:
  - Power-on BIT (PBIT)
  - Initiated BIT (IBIT)
  - Continuous BIT (CBIT).
- test coverage 95% or greater (PBIT+CBIT+IBIT)
- comprehensive fault codes
- test suite functions are board dependent
- BIT available as firmware and as software:-
  - see Figure 1 and Figure 2 opposite

## BOARD FIRMWARE BIT (FW PBT/nnn)

### Power-on BIT (PBIT)

- onboard firmware in Flash memory
- integrated into BIOS POST
- selectable test duration/coverage
- results stored in EEPROM, available to Operating System
- available only as a board firmware option (FW PBT/nnn)

### Stand-alone Initiated BIT Console (IBIT)

- onboard firmware in Flash memory
- Operating System not required
- operates via serial console
- interactive test execution:-
  - extra tests available
  - supports test parameters
  - supports complex looped execution
- utility functions for direct hardware access
- available only as a board firmware option (FW PBT/nnn)

## OPTIONAL SOFTWARE BIT (SW BIT/nnn)

### Continuous BIT (CBIT)

- specific to Operating System (OS)
- integrated with PBIT for low-level tests
- fully customizable test selections
- stored results available to applications
- CPU remains interruptible and pre-emptable
- does not disconnect external interfaces
- remote operation via SSL network connection
- optionally available for the specified Operating System (SW BIT/nnn):-
  - board firmware BIT also required (FW PBT/nnn)

### OS Initiated BIT Console (OS IBIT)

- specific to Operating System
- interactive test execution:-
  - supports test parameters
  - supports looped execution
- remote operation via SSL network connection
- optionally available for the specified Operating System (SW BIT/nnn):-
  - board firmware BIT also required (FW PBT/nnn)

### Operating Systems Supported

- Linux and VxWorks (board dependent)
- contact your local sales office for the latest Operating Systems support

## Concurrent Technologies Boards Supported

- a range of Concurrent Technologies ruggedized and commercial single board computers, supporting Intel® Core™ i7, Intel® Core™ 2 Duo and Intel® Atom™ processors:

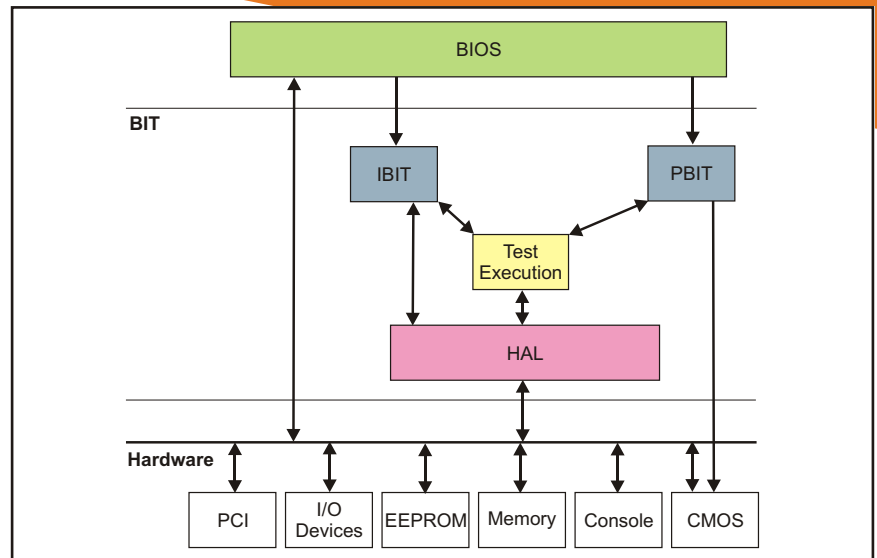


Figure 1:- PBIT and Stand-alone IBIT firmware

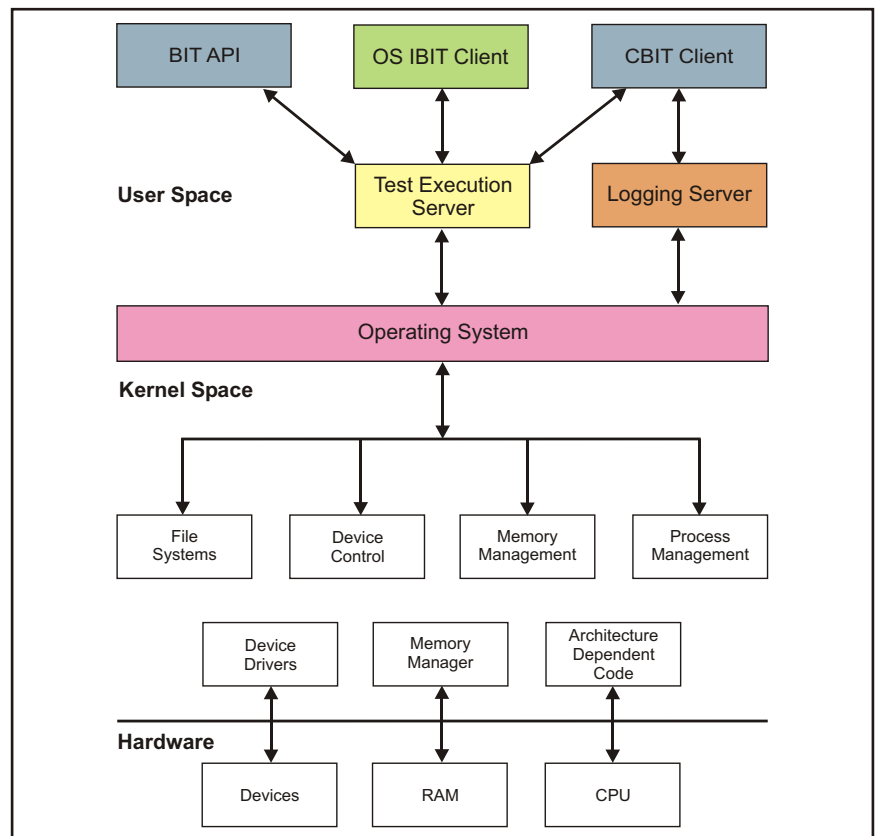


Figure 2:- CBIT and OS IBIT software

- 3U VPX: TR 501/36x and TR A40/30x
- 6U VXS: VX 541/06x and VX 511/06x
- 6U VME: VP 717/08x, VP 417/03x and VP A45/01x
- 3U CompactPCI: TP 702/38x, TP 402/35x and TP A4x/30x
- 6U CompactPCI: PP 531/06x and PP 512/06x
- contact your local sales office for the latest range of boards supported

## ORDERING INFORMATION

### Order Number Product Description (Software)

- |               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| FW PBT/nnn-00 | Power-on BIT (PBIT) and Stand-alone Initiated BIT Console (IBIT) firmware |
| SW BIT/nnn-mo | Continuous BIT (CBIT) software including OS Initiated BIT (IBIT) software |

Where nnn = Concurrent Technologies single board computer, m = media code and o = operating system supported  
For all supported options please contact your local sales office