

# **Mentor Graphics Power Aware Verification: Ready for UPF Interoperability**

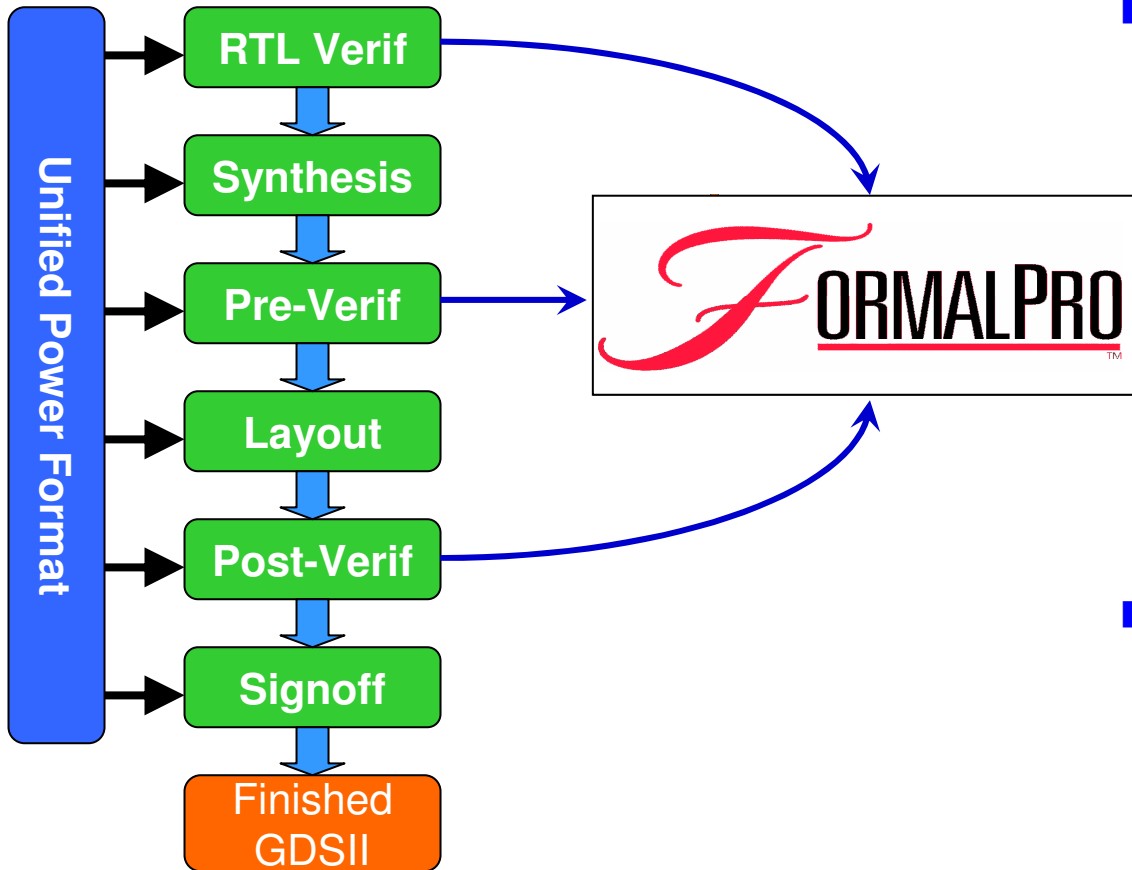
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Business Development**

**Mentor  
Graphics®**

# Mentor Power Aware Verification Solutions

- **Dynamic**
  - Clock gating
  - Multi-voltage/multi-clock domain
- **Static**
  - Power gating (power shut off)
  - Voltage threshold scaling
- **Logic Equivalency checking**
  - Does implementation match what was verified at RTL?
- **0-in CDC-fx**
- **Questa PA Simulation**
  - Seamless & Questa for S/W and H/W PA verification
- **FormalPro**

# Mentor's UPF Low Power Design Verification Solutions

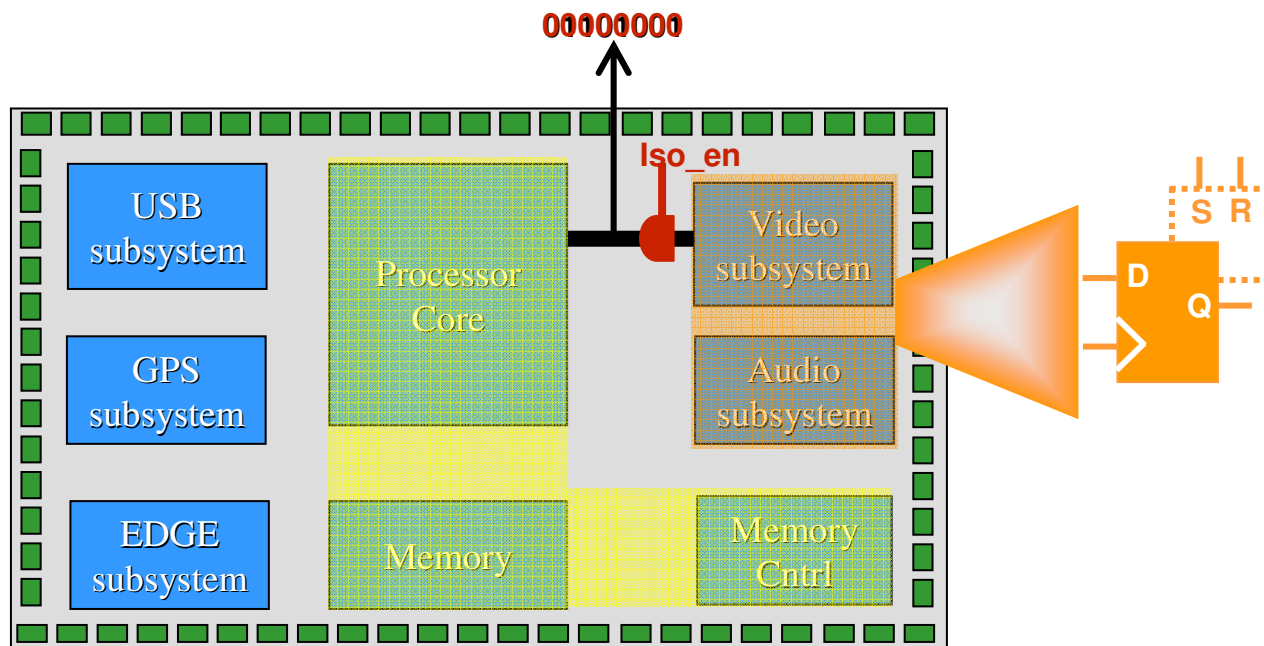


- **Questa Functional Verification**
  - RTL & gate verification of low power design intent

- **FormalPro**
  - Is the implementation equivalent to what was verified?

# Questa UPF Support: 6.3d (Nov 07)

- Power Domain specification/identification
- Power shut-down conditions – supply network modeling
- Corruption of combinatorial & sequential logic
- Identification of registers requiring retention
- Accurate retention register modeling at RTL
- Isolation



# FormalPro Power Management Verification

## UPF Support in 1Q08

- Power Management Status in the main transcript
- Power Management Details Report
  - Failed due to wrong register type

The screenshot displays the FormalPro software interface. At the top, a window shows the verification status: "Number of Unsolved comparison points: 0" and "Designs are EQUIVALENT". Below this, a red line indicates a failure: "Power Mgmt Check - FAILED". A message below states: "For more detail please refer to the reports in: ./formalpro.cache/reports".

The main interface shows a project named "FormalPro: des3 <=> des3". The "Reports" menu is open, showing options like "Black Boxes", "Duplicates", "Constraints", "Matching", "Removed", "FormalEyes", "Verification Results", and "Generate Reports...". The "Power Management Details" option is selected, opening a sub-menu with "Run Statistics", "Comparison Details", "Comparison Summary", and "Power Management Details".

The "Power Management Details" report is displayed in the main window, showing the following content:

```
Formalpro - Power Aware Mismatched Types Report
(c) Mentor Graphics Corp 2006
=====
***
*** Checking Attributes [ Retention ]
*** 3 Retention Register Pairs reported as mismatched recorded below
***
key_b_r_reg[0][0].Q
key_b_r_reg[0][0].Q
key_b_r_reg[0][55].Q
key_b_r_reg[0][55].Q
u0.key_r_reg[1].Q
CLKFREE \B,des3,key_r_reg[1]1.Q
```

# Mentor Interoperability Program

- **Interoperability Supported via Questa Vanguard Program (QVP)**
  - **Get Access to Questa & FormalPro**
    - **Test your product's interoperability**
- **Information on Questa Vanguard Program**
  - <http://www.mentor.com/products/fv/partners/qvp.cfm>
- **Contact**
  - **Dennis Brophy**
  - **E: dennisb@model.com**
  - **P: +1 503-685-0893**

# UPF Support Summary

- **Mentor Graphics' PA verification solutions are production proven**
  - SoCs designed and shipping in mobile handsets
- **Mentor contributed technology and expertise to the Accellera UPF standard**
  - Remains active, chairing the IEEE P1801 UPF effort
- **Mentor supports the UPF standard as the industry standard for low power design**
- **Mentor offers interoperability access to Questa and FormalPro**
  - Via Questa Vanguard Program

The background is a vibrant blue with a complex pattern of white and light blue lines. These lines form various geometric shapes, including rectangles, circles, and spirals, reminiscent of a circuit board or a data visualization. The overall aesthetic is high-tech and digital.

# Mentor Graphics®

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