Using Power Design Manager (PDM) for AMD Spartan™ UltraScale+™ Devices

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together we advance_

AMD Power Design Manager Overview

AMD Power Design Manager

Standalone tool for estimating power requirements of Versal, UltraScale+, and Kria™ devices

Integrated in AMD Unified Installer, supporting file import from Vivado and XPE.

Refer to PDM user guide UG1556 for installation details

Using PDM for AMD Spartan™ US+

Design Entry Flows in PDM

Design Creation (Manual Estimation Flow)

- Select your Spartan™ UltraScale+™ device
- Use IP wizards or Pages to add new design blocks
- Estimate device resource counts and toggle rates

Design Analysis (Import Flow)

- Import Spartan UltraScale+ design from AMD Vivado™ Report Power
- Automatically populate architecture and device details
- Perform “what-if” analysis

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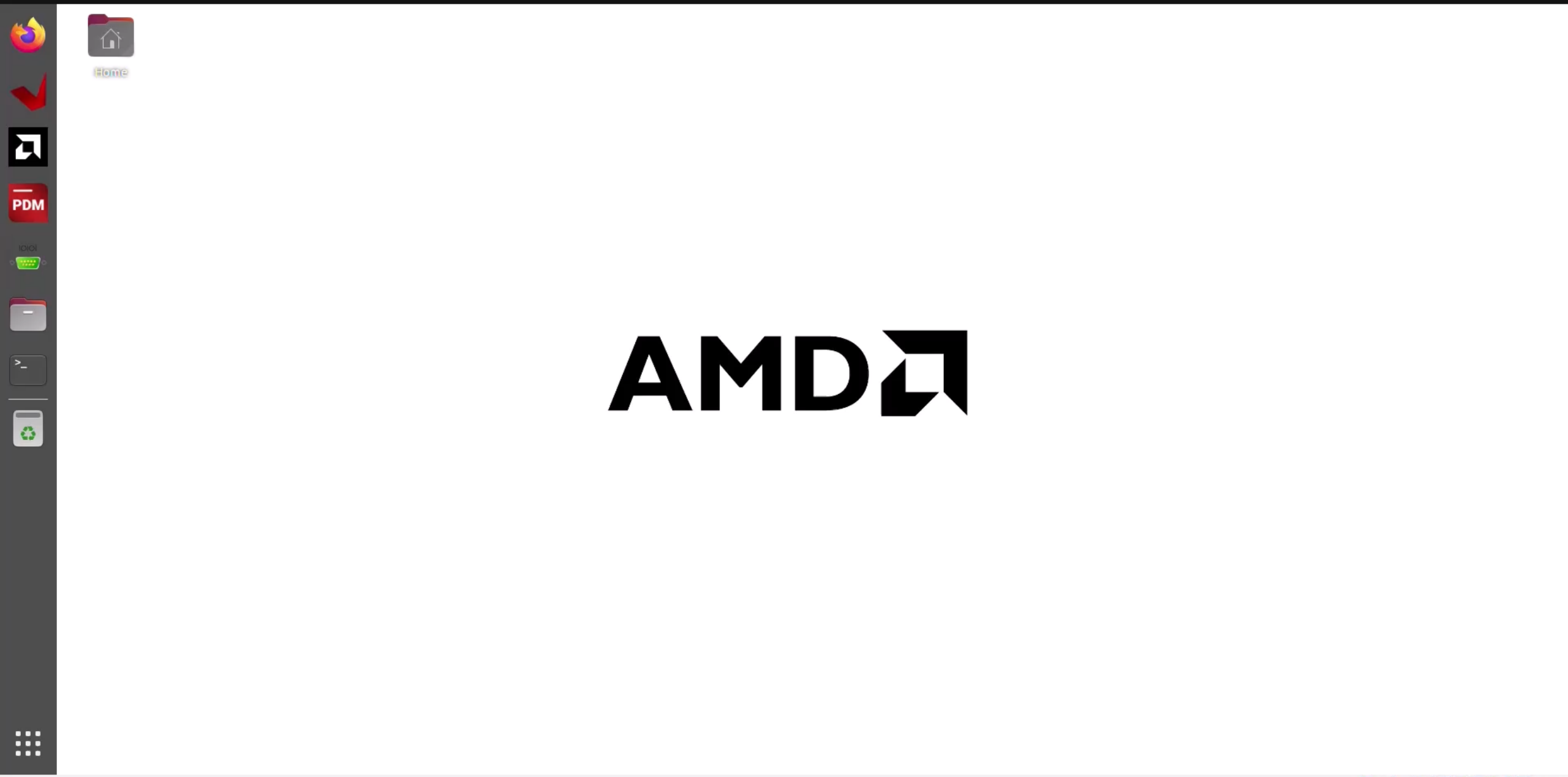
Manual Estimation Flow



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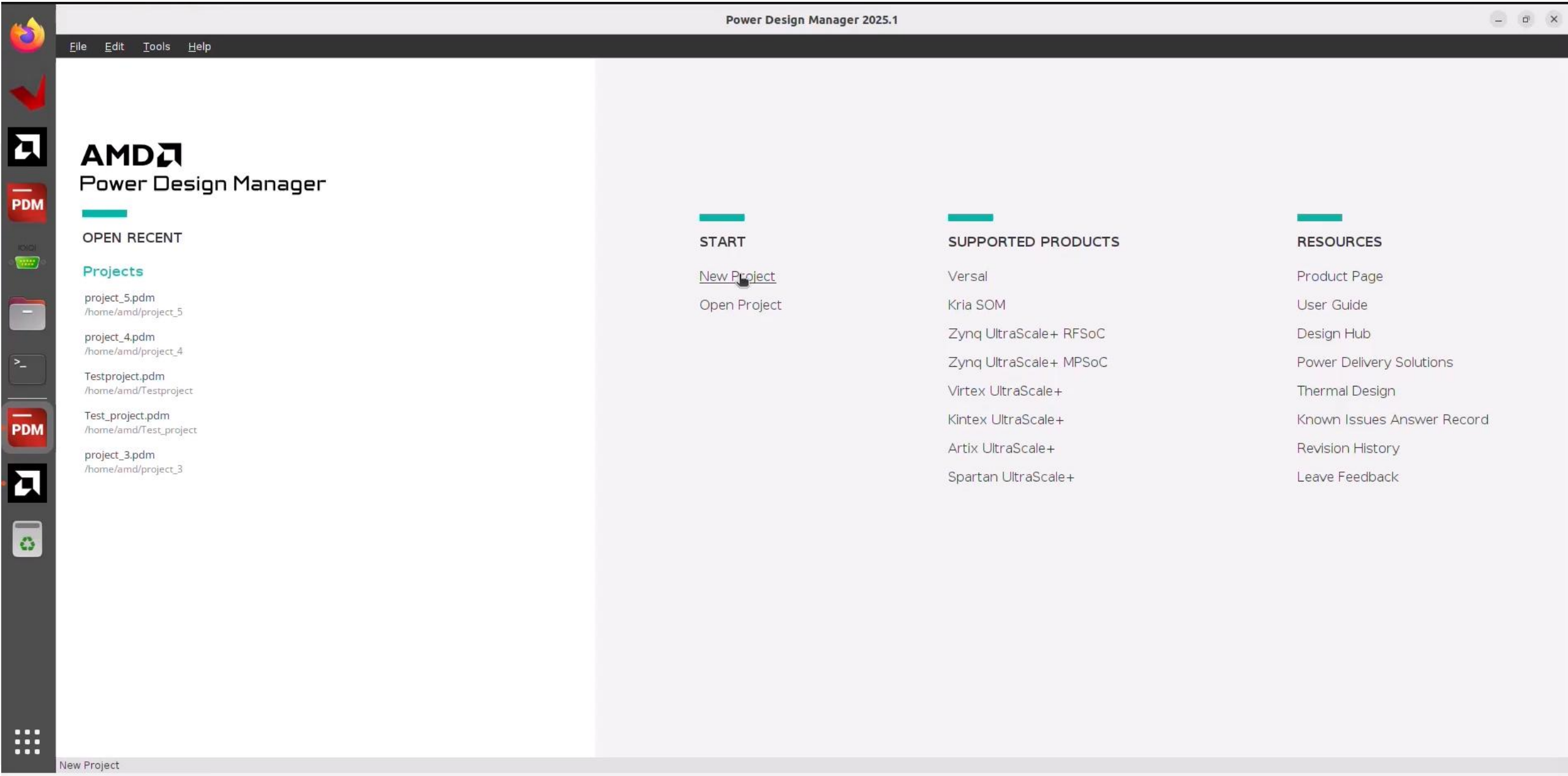
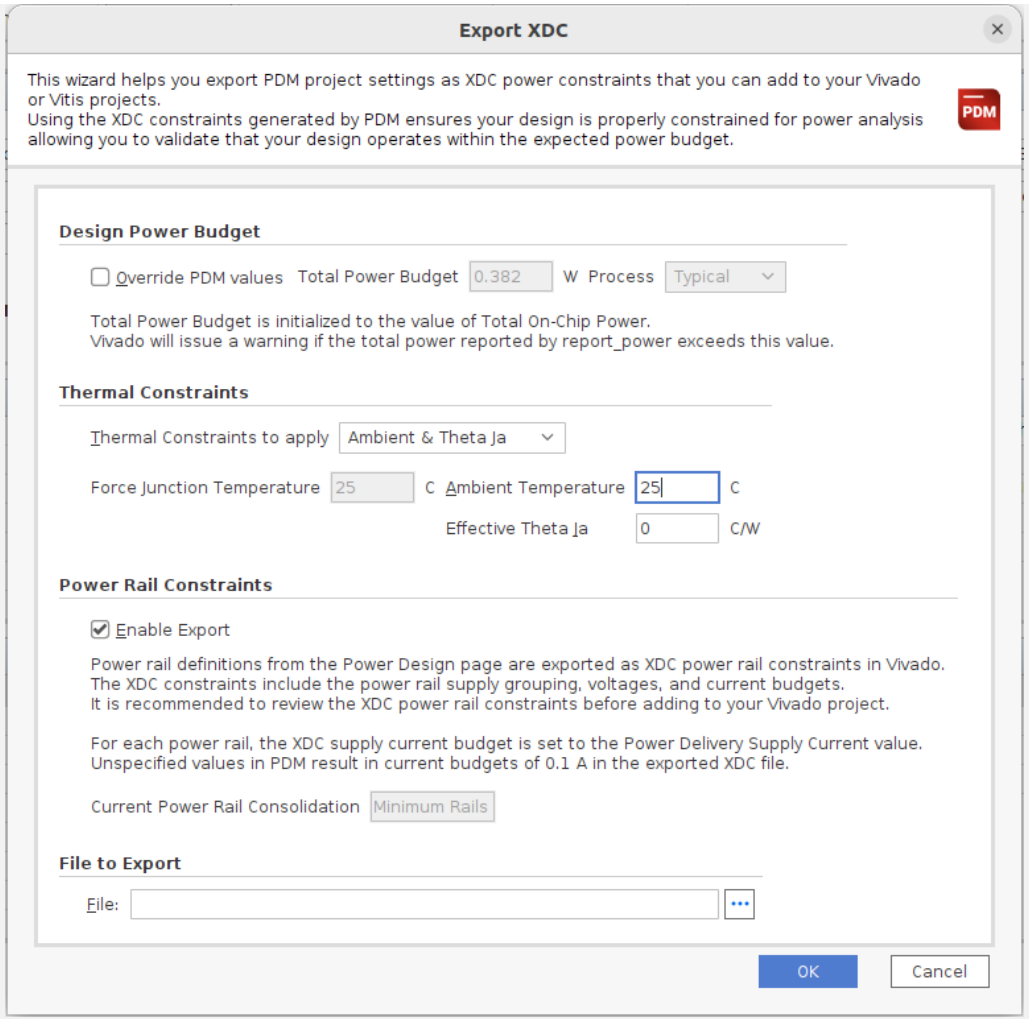
Import Flow



Exporting the Power Constraints

Export XDC constraints to guide the AMD Vivado™ or Vitis™ tools and enable reporting

1. Device process
2. Junction temperature
3. Ambient temperature
4. Design power budget
5. Supply voltage and current budget for specified power rail consolidation



PDM Project Report

- **PDM allows exporting of project data to text file**
- **From Summary Page**


```
1. Summary
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1.1 Summary
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+-----------------------+--------------------------------+
| Total On-Chip Power   | 0.413 W                        |
|  Static Power         | 0.161 W                        |
|  Dynamic Power        | 0.252 W                        |
| Junction Temperature  | 70 C                           |
| Thermal Margin        | 30 C                           |
| Thermal Power Margin  |                                |
| Characterization      | Production (+/- 15% accuracy)  |
+-----------------------+--------------------------------+


1.2 Environment
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+---------------------------------+-------------+-------------+
| Junction Temperature (Tj)       | Force Tj    | 70 C        |
| Ambient Temperature (Ta)        |             | 30 C        |
| Effective Theta JA              | Calculated  | 96.8523 C/W |
| JESD51-14 Specification Airflow |             |             |
| Max. Junction Temperature       |             | 100 C       |
+---------------------------------+-------------+-------------+


1.3 On-Chip Static Power
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+-----------+-----------+-----------+
| Resource  | Power     | Power %   |
+-----------+-----------+-----------+
| Static    |           |           |
|  PL       | 0.16146 W | 39.0953 % |
|  GTs      |           |           |
+-----------+-----------+-----------+
```

Summary

AMD Power Design Manager offers:

- Page-based workflows for device setup, power estimation, and rail design
- Support for both manual and import flows
- Export options available for constraints and reports

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