AI in PCB System Design: A glimpse into the Future?

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Aerospace | Transportation | Energy | Industrial | Medical | Mobility | Semiconductor

Siemens has been deploying AI, at-scale, delivering significant quality of life improvements to people all over the globe with over 1400 AI developers & 3700 patents

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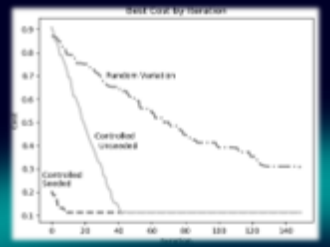
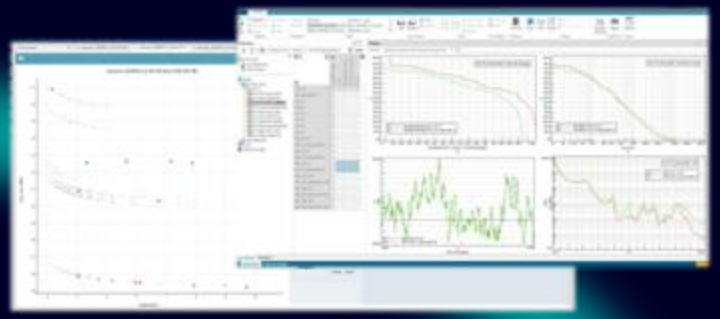
Siemens AI expertise delivered for design….

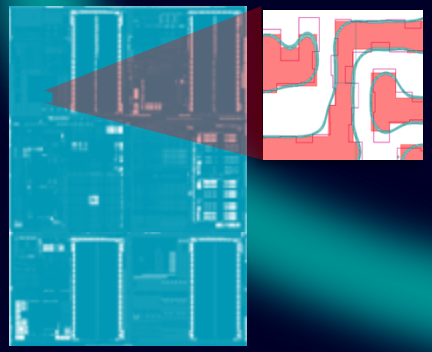
NX adaptive user interface



HyperLynx
Design space exploration &
PDN optimization

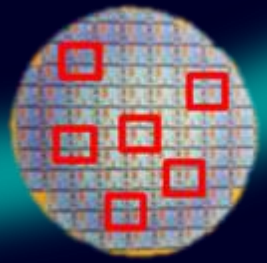


Simcenter design decision support, model-based system testing & smart controls

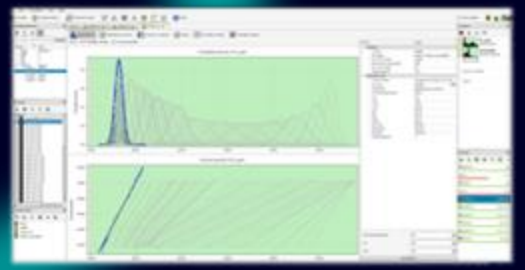


Calibre OPC & LFD
IC verification

Supplyframe supply
chain analysis



Tessent yield analysis



Solido variation designer

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Why does electronic system design need AI solutions?

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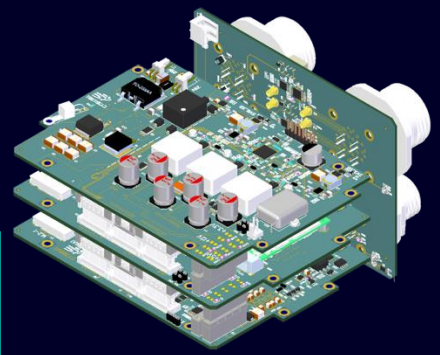
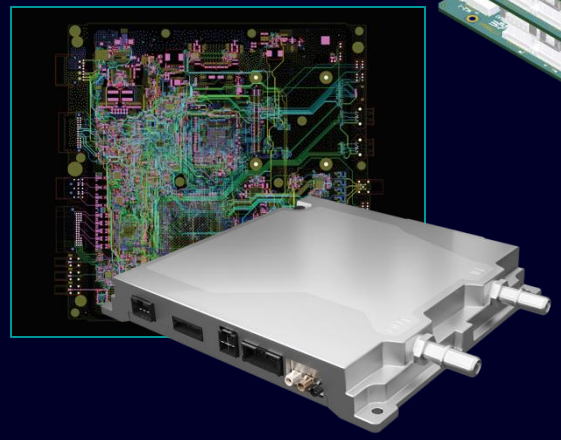
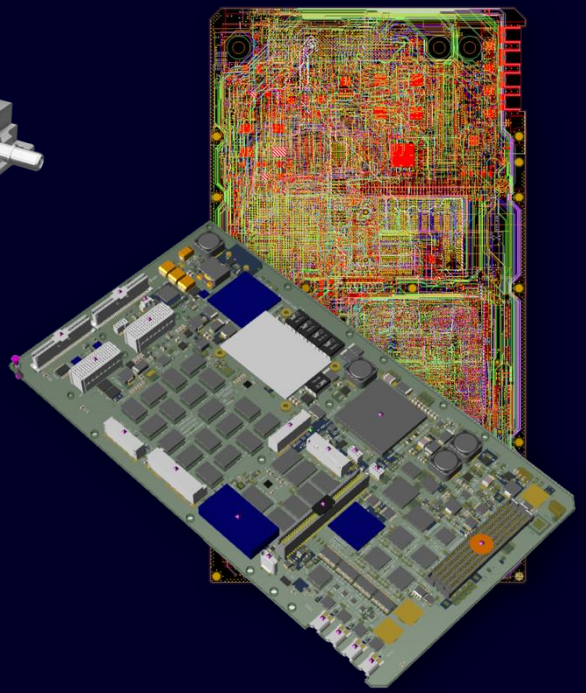
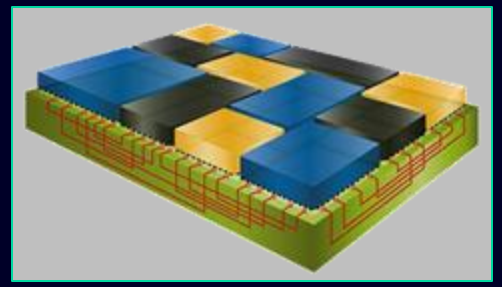
The scaling dilemma









Systems design activity is
rising

Systems complexity is
exploding

Costs and schedules are
skyrocketing

Universities are not graduating
enough EEs and hardware engineers

Existing talent is slowly
exiting the workforce

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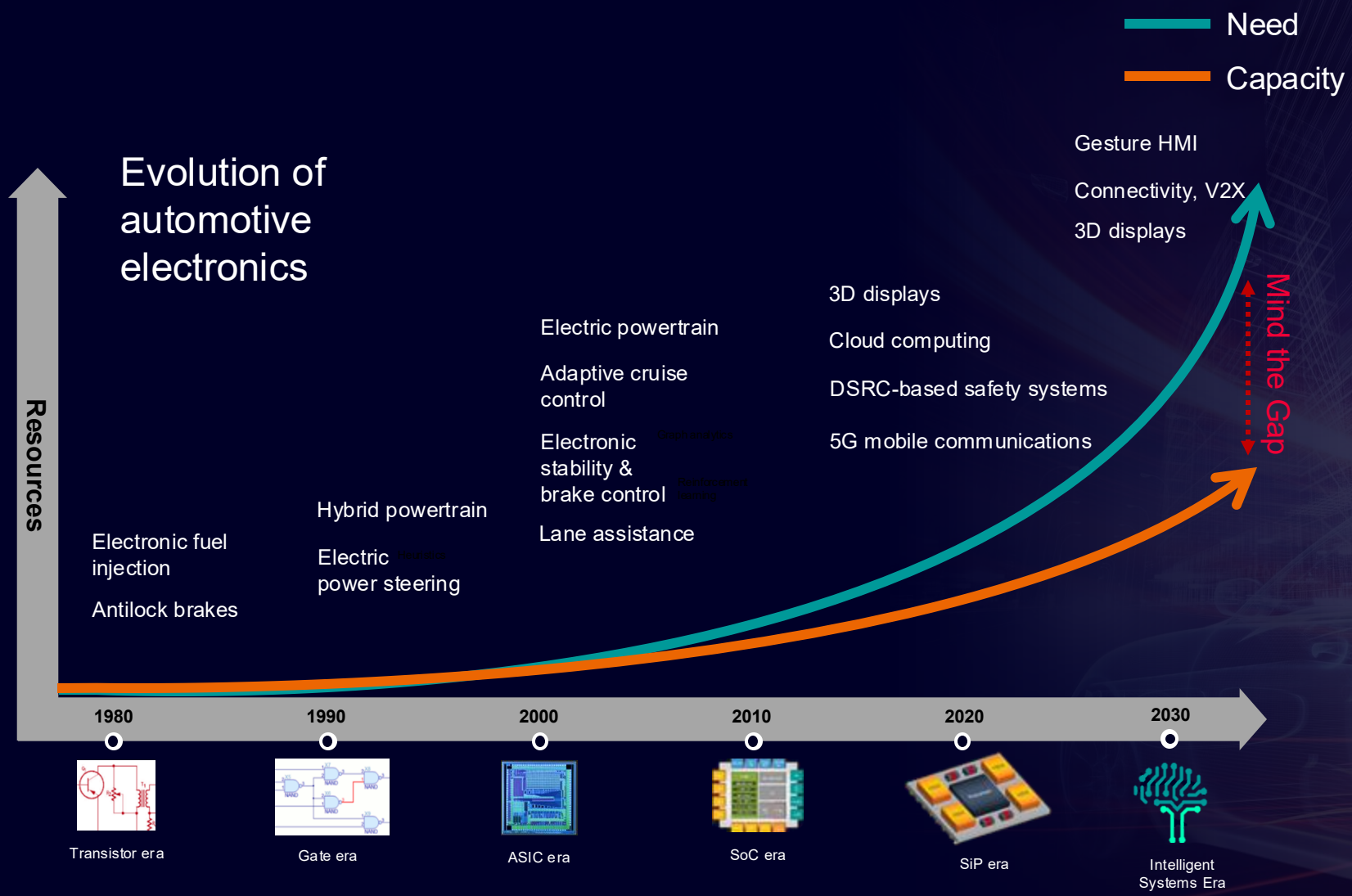
The resource gap is accelerating



A gap is growing between **what is needed and what is possible**

Solutions need to deliver **orders of magnitude** improvement **not percentages**

AI is closing this gap **reducing the needed resources** and **increasing available capacity**

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AI-infused electronic systems design

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Success requires verifiable AI targeted to EDA applications

Verifiable AI empowered tools delivering trusted, repeatable value and **you own your data**

- Delivering orders of magnitude productivity improvements
- Providing new design insights
- Accelerating workforce knowledge

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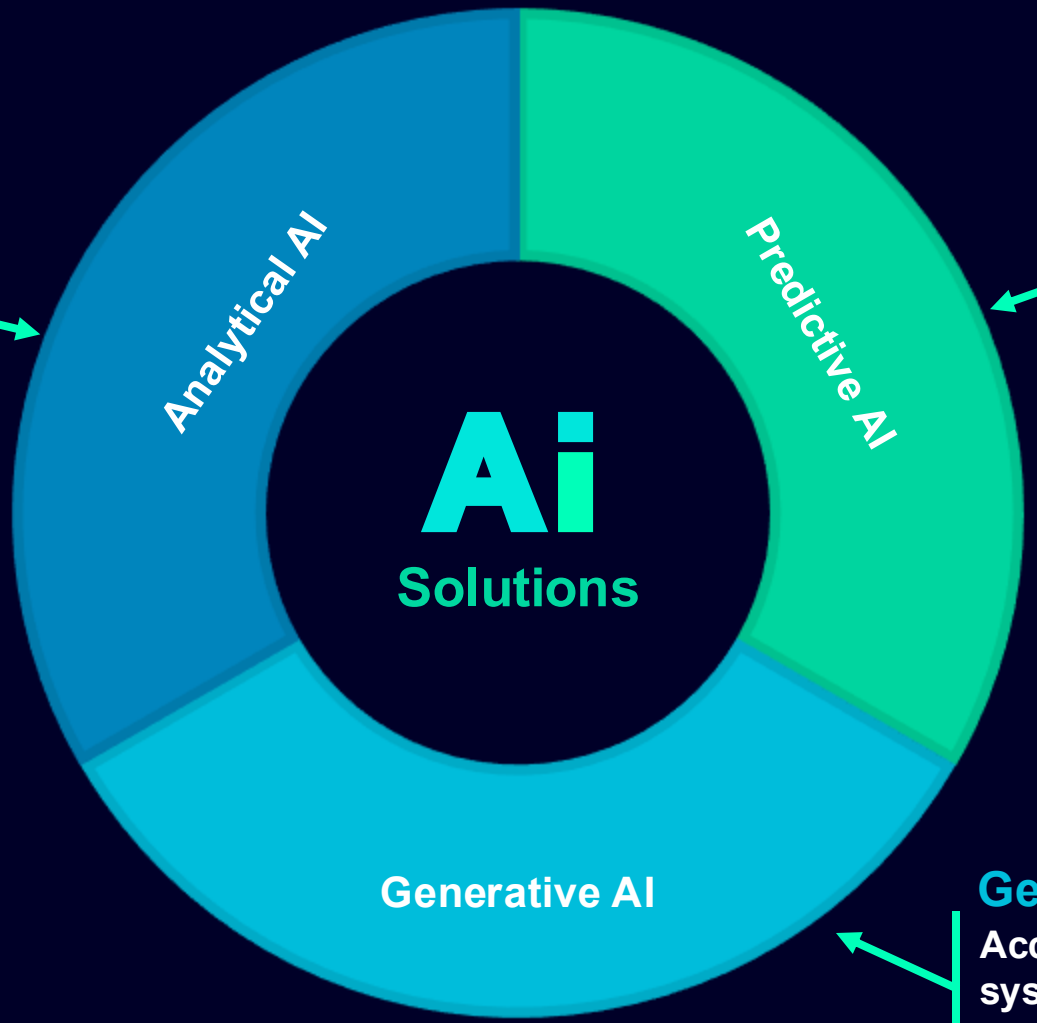
AI spans modeling technologies to deliver productivity

Analyze

Identification of key data insights not practical with traditional methods



Optimize

Domain-specific predictive models to reduce computational requirements and accelerate decision making

Generate

Accelerate design creation, system optimization, and model abstraction

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AI-infused electronic systems design

Addresses key business challenges

Quality

Enable high quality design with AI tools

Schedule

Manage schedules as complexity increases

Resources

Non-linear increase across the toolchain and processes

Faster design closure

Fewer re-spins

Reduced design errors

Accelerated debug

Prioritized resources

Increased proficiency

Improved quality

Optimized logistics

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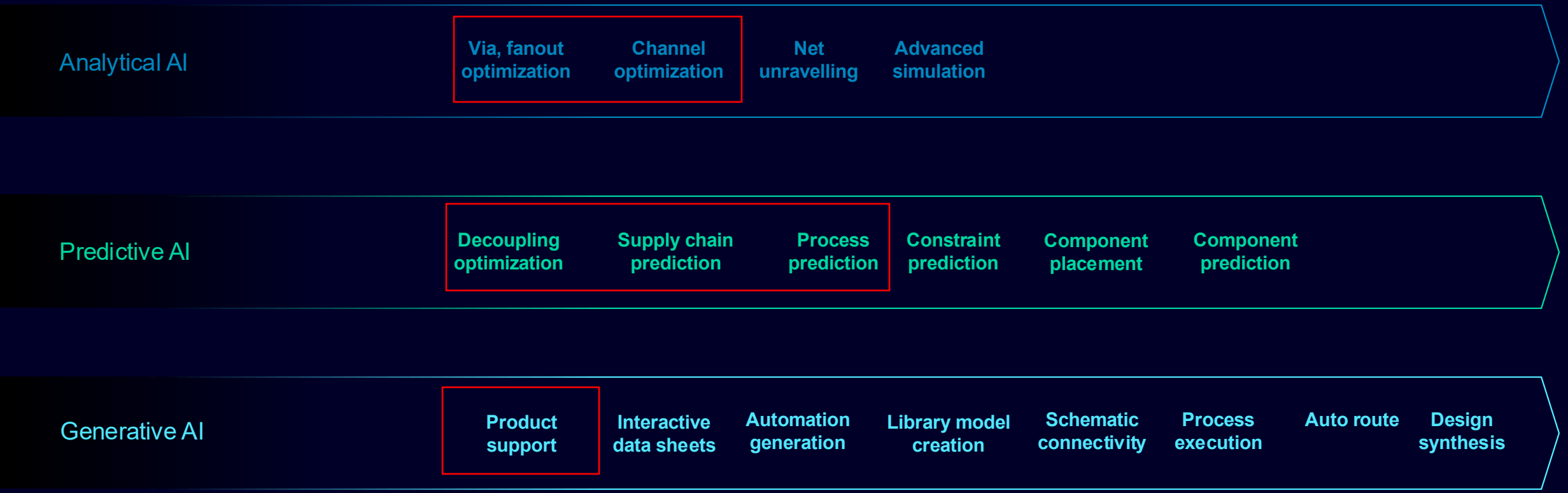
Enabling technologies for electronic systems design

Anticipated delivery



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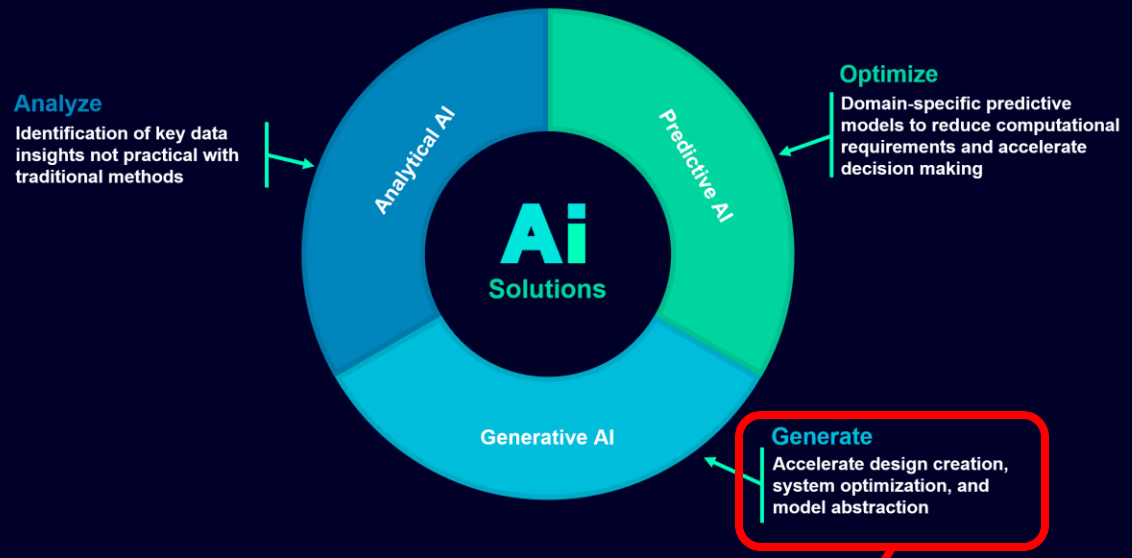

CELUS integration

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About CELUS

Founded in **2018**

Headquarters in **Munich, Germany**

Commercial Headquarters **Austin, Texas**

Design Center **Porto, Portugal**

100 employees and growing

30 million € in funding from renowned **VCs**

CELUS

Data & Insights : CELUS Platform Summary

Projects Created

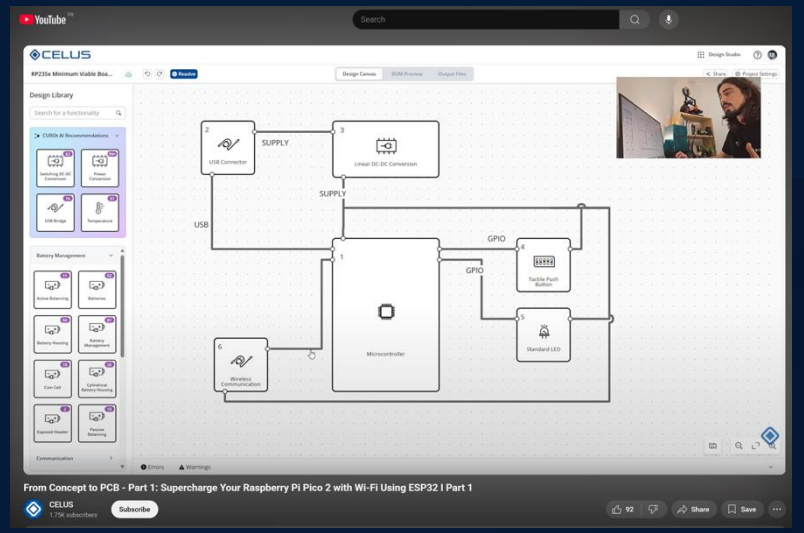
22K

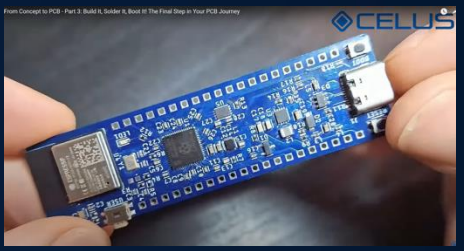
Platform Users

20K

Components In Use

225K



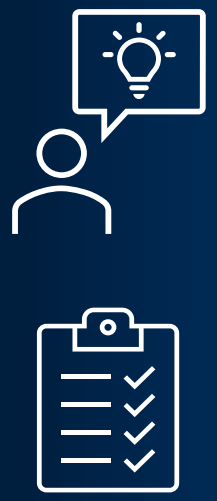


User Type	Projects Completed
Professional Eng.	1.71k
Innovators & Inventors	1.40k
Academics	800
Unknown	752

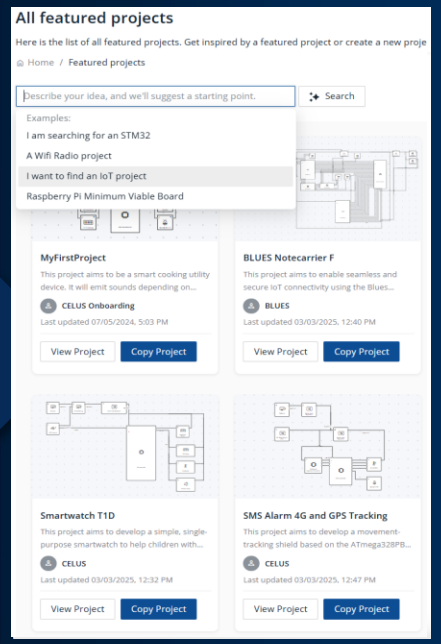
User Type	% Users	% Projects	% Component
Professional Eng.	21.79%	28.61%	27.58%
Innovators & Inventors	31.14%	32.02%	39.89%
Academics	20.43%	22.43%	19.72%
Unknown	26.64%	16.94%	12.81%

CELUS

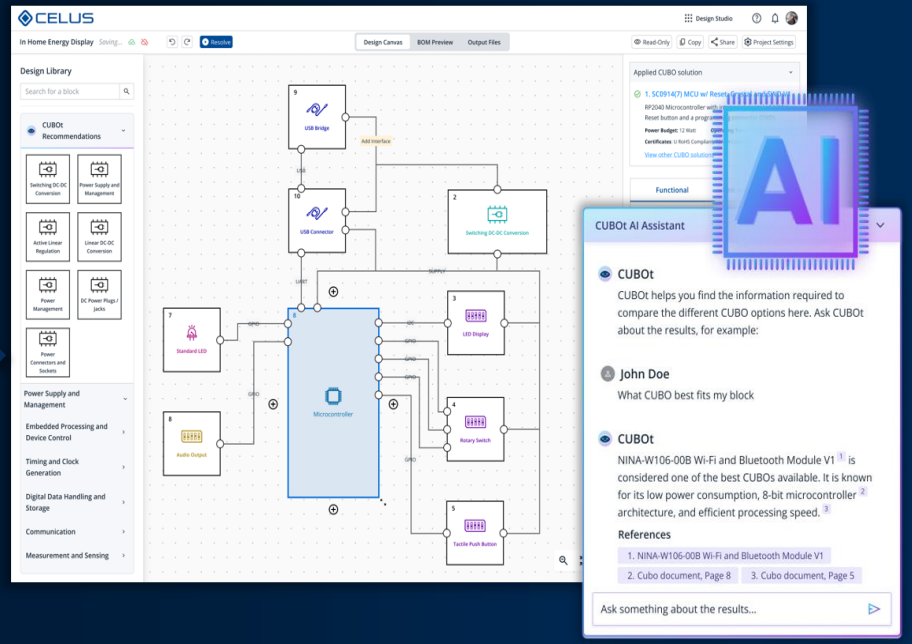
CELUS Design Platform: Digital Transformation



Ideas & Requirements



Template or Clone Selection



Capture - Evaluate - Validate – Handover

BOM

Fully-Connected Schematics

ALTIUM DESIGNER
KiCad
F 360
PADS Pro
EAGLE
cadence

CELUS

CUBO™ : The Smart Digital Datasheet & Sub-Circuits

SPECIFICATIONS

INTERFACES

CAD FILES

SUPPLY CHAIN

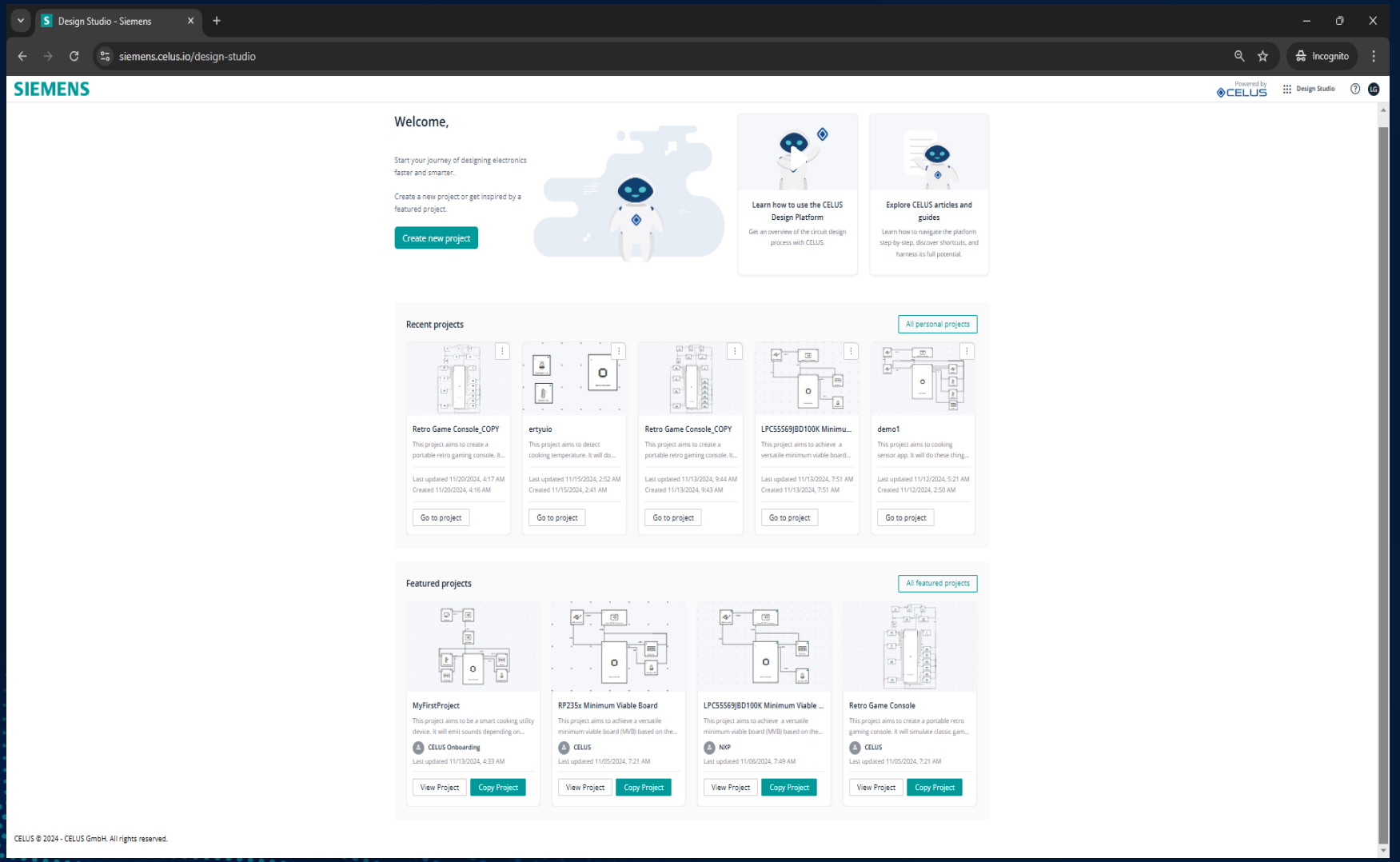
APPLICATION

OPTIMIZATION FACTORS

CUBO™
Essential Information at Your Fingertips
An AI-Powered Digital Datasheet
Streamlined Design & Component Selection
Accelerate Innovation & Reduce Errors
Faster Time-to-Market for Your Products

CELUS

Co-Brand: A Comprehensive, Personalized Platform



CELUS

Connect - Projects

app.pcbconnect.online/projects

Siemens | Admin | Marketing | Support | IT | Products | Google Traduction | Design | Trips | Training | Perso | Competition | Social Media | AI | 3D Printing | Elmar | To be reviewed | CDT | 2409 | Alex | Teamcenter | Google Actualités | Videos | AI | All Bookmarks

Connect

SIEMENS

Home
Projects
Help
Alerts
Settings

All Projects | My Projects | Shared With Me | Shared By Me | Shared With Me As Guest

Change View | Change Sort | Create New Project | Start Designing Now

Version 2 | PADS Pro
pcie-comm-module
5/9/2025, 10:26 AM | Olivier Arnaud

Version 1 | Celus
My_guitar_effect1
2/28/2025, 4:48 PM | Olivier Arnaud

Version 2 | PADS Pro
Embedded Passives
1/28/2025, 3:16 PM | Olivier Arnaud

Version 12 | PADS Pro
SCM-TXRX-PF ver 03
10/3/2024, 4:45 PM | Charl Peters

Version 2 | Xpedition 2.14
Current gen
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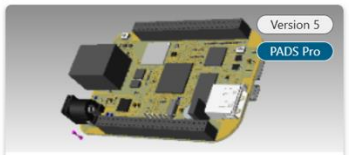
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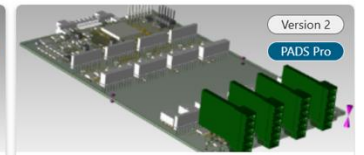
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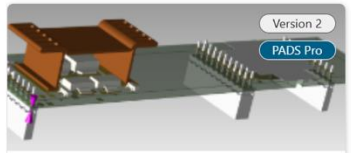
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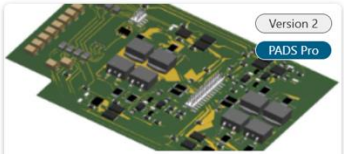
MS401_CG
7/9/2024, 4:55 PM | Olivier Arnaud

Network
6/19/2024, 4:53 PM | info and support PCBFlow

BeagleBoneBlack
3/14/2024, 1:35 PM | Olivier Arnaud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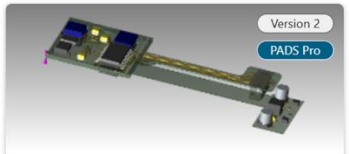
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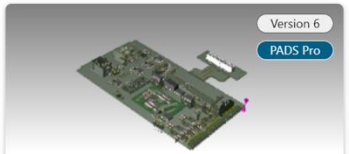
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System Controller
1/28/2025, 10:40 AM | Olivier Arnaud

Version 4 | PADS Pro
BeagleBone Black
8/8/2024, 11:46 AM | Olivier Arnaud

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Version 3 | PADS Pro
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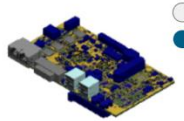
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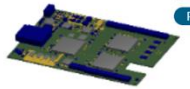
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Version 1 | PADS Pro
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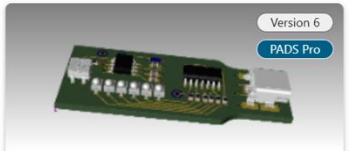
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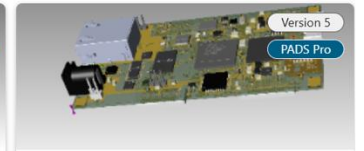
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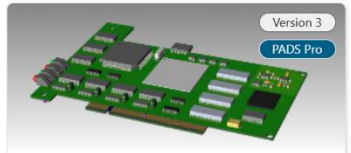
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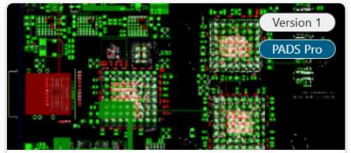
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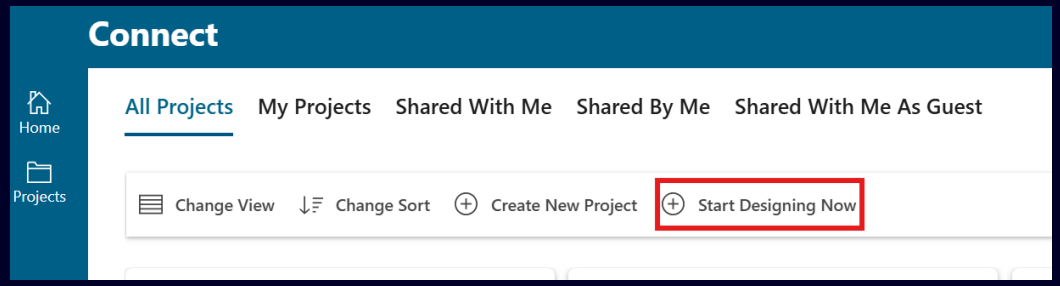

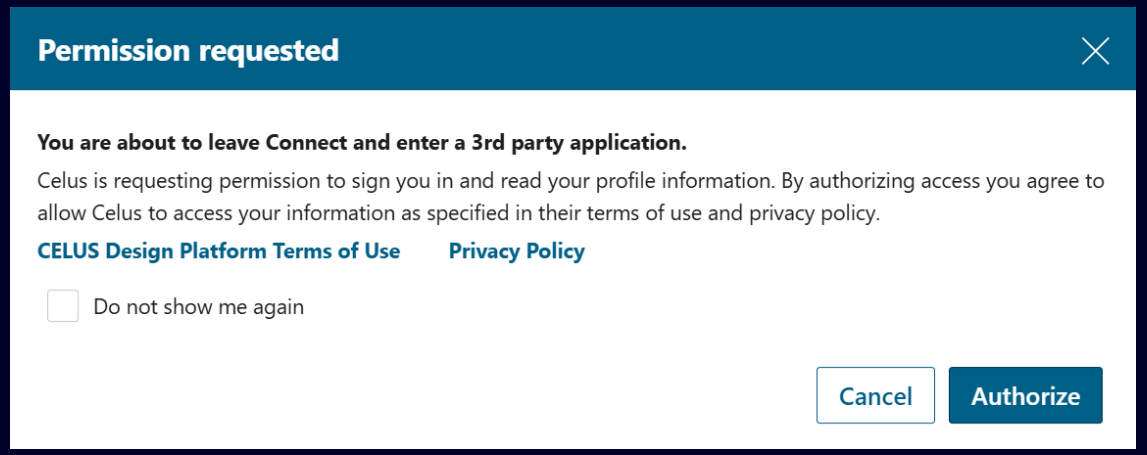

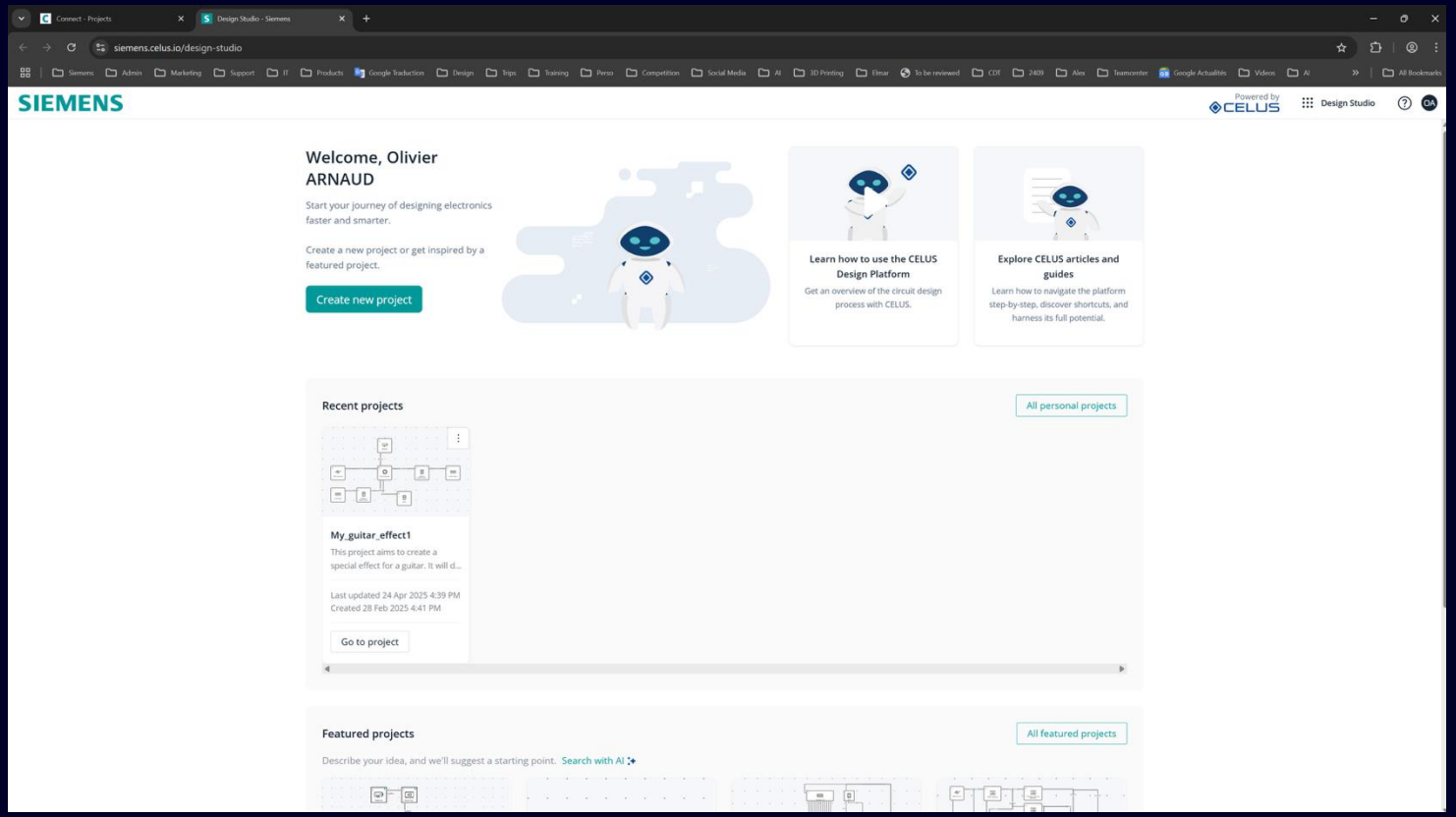

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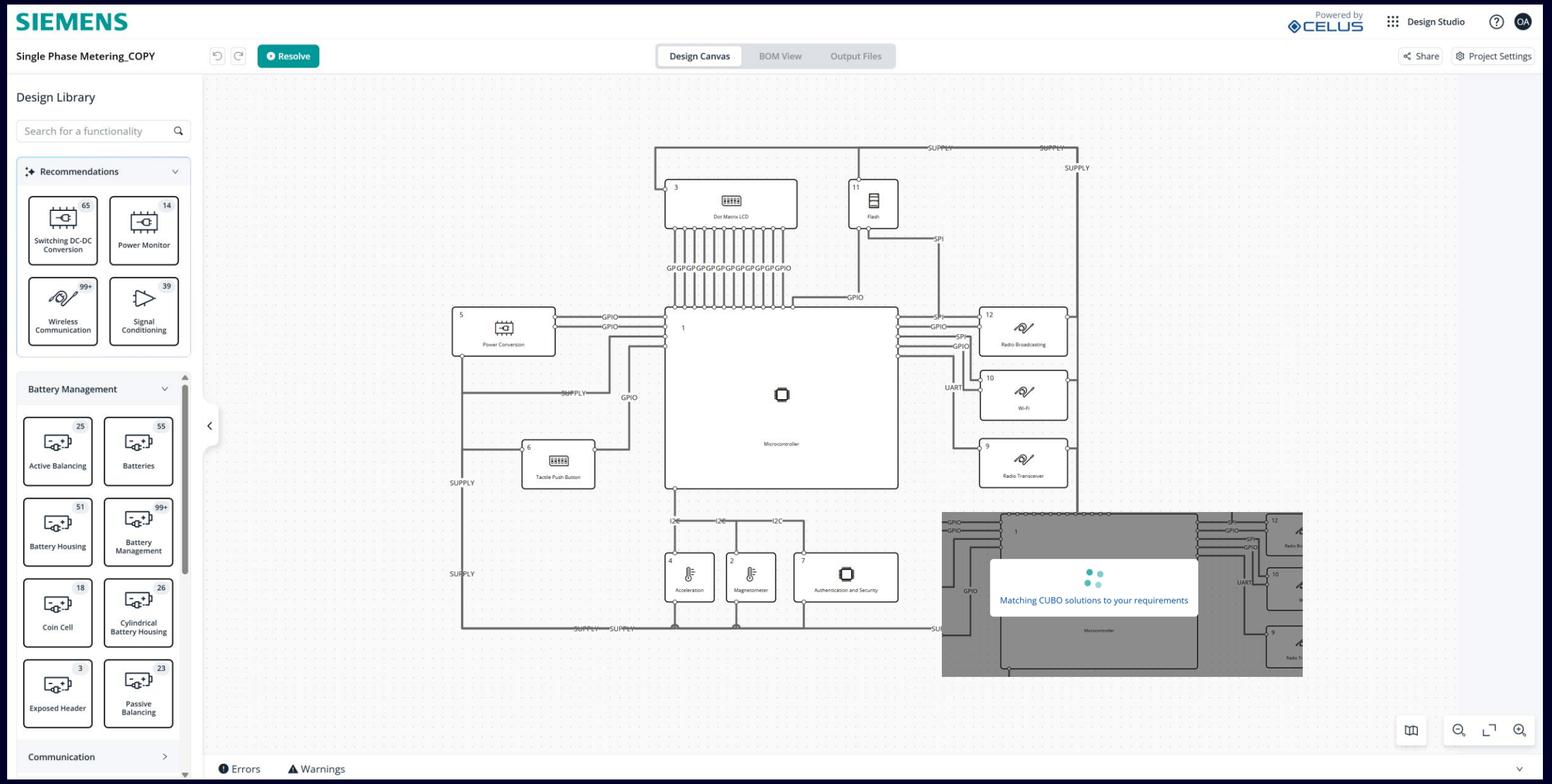

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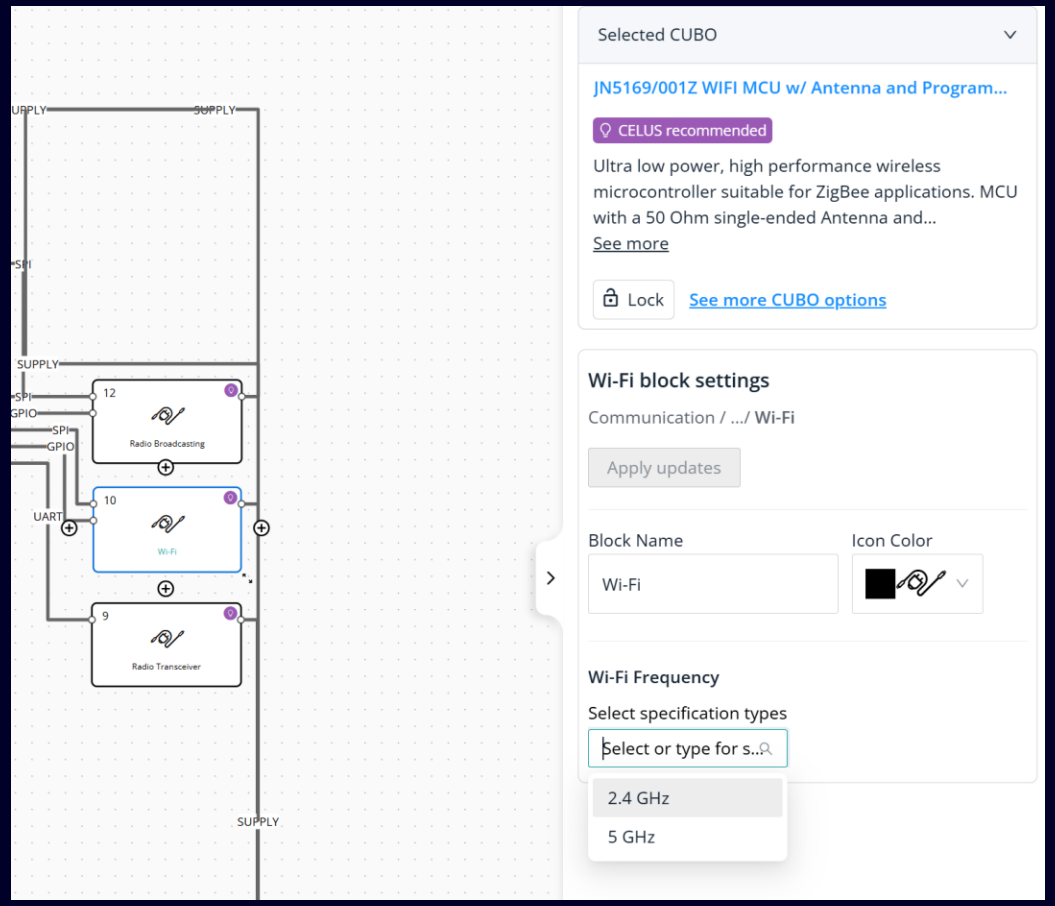

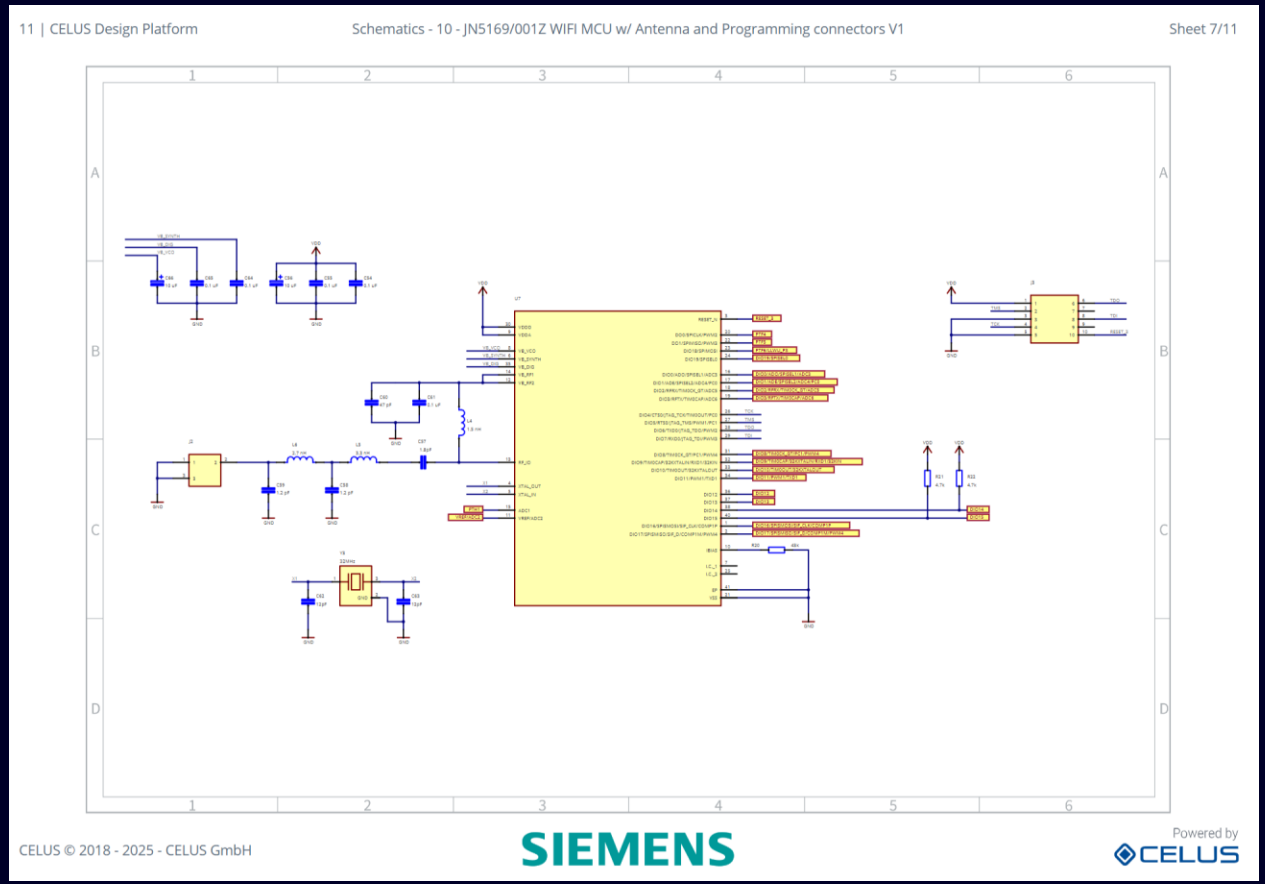

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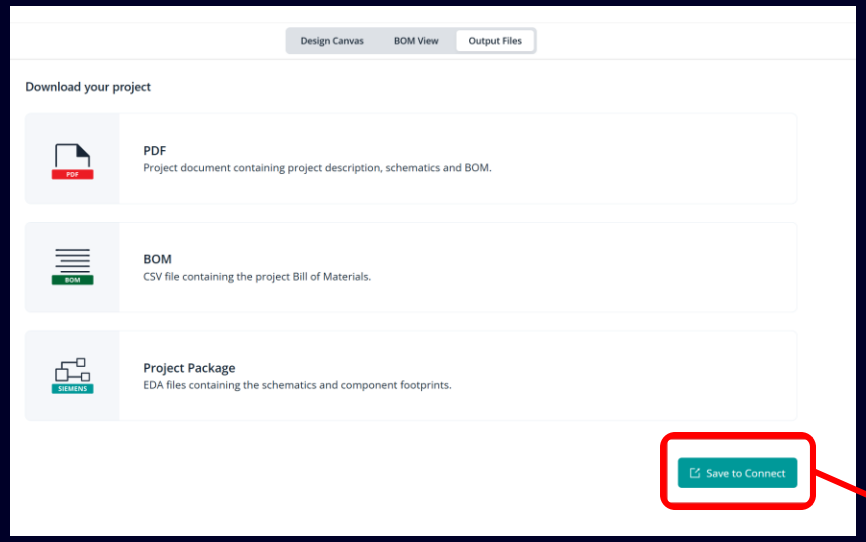

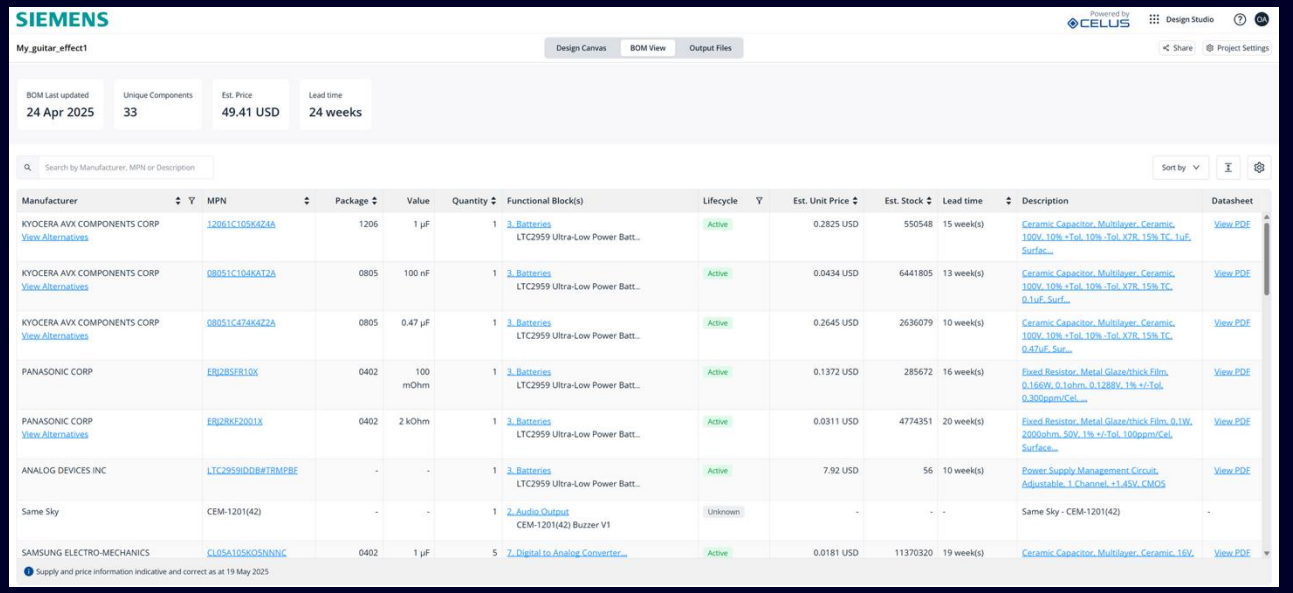

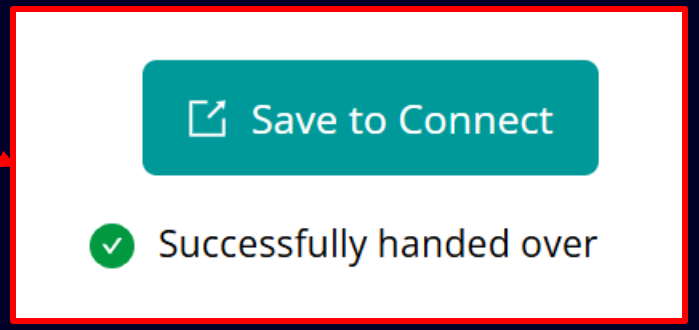

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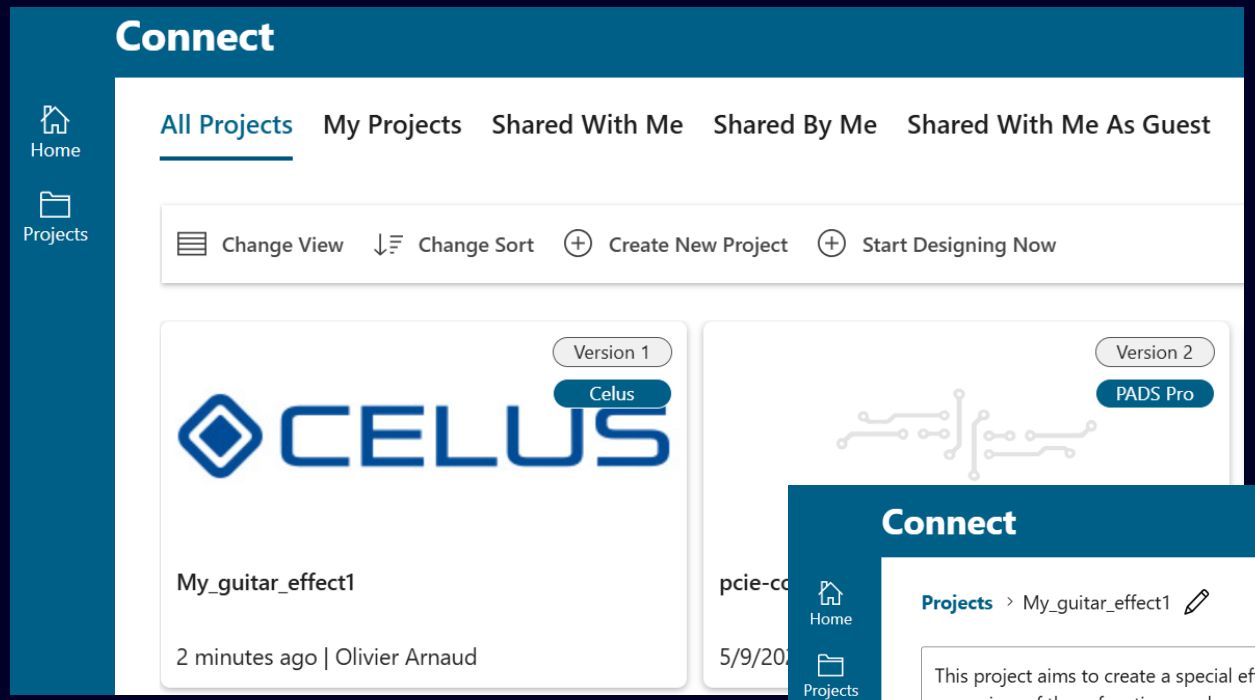

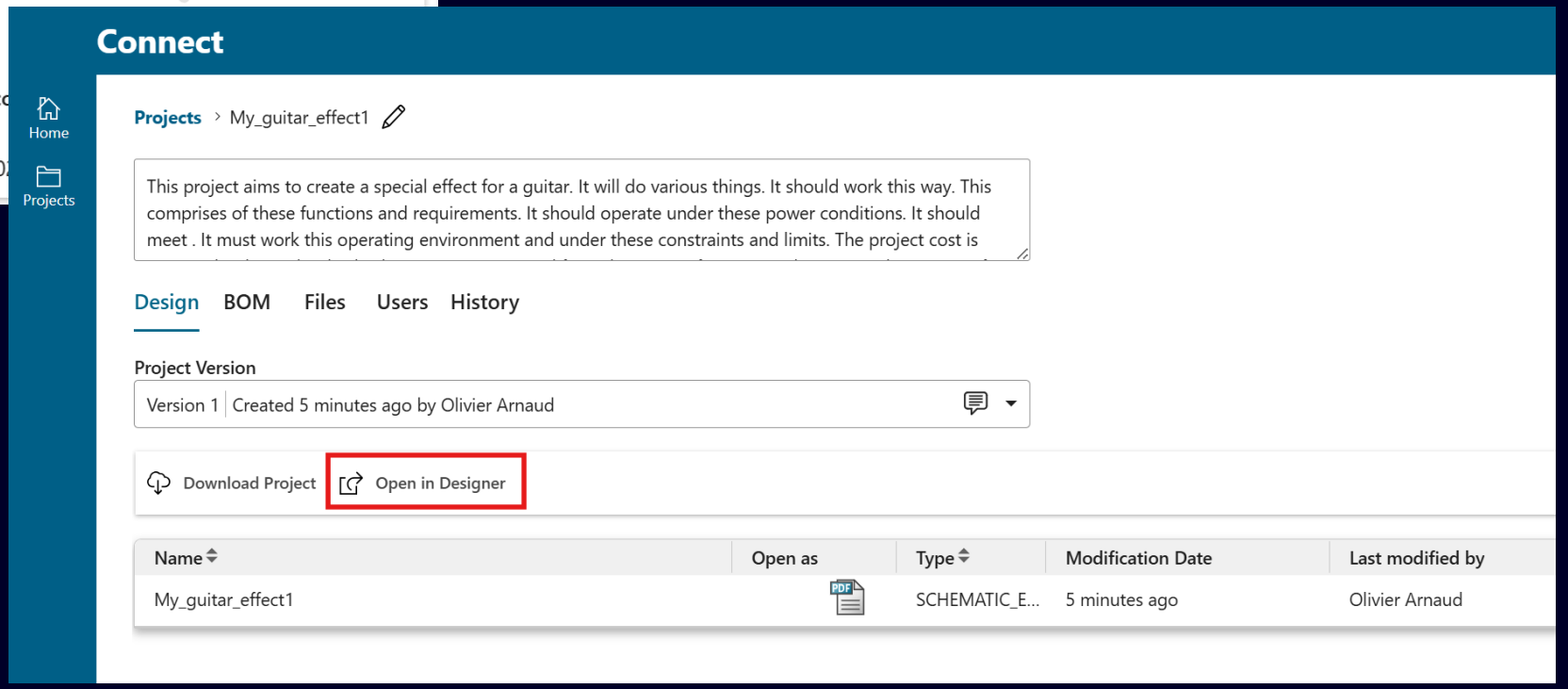

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Your reaction ?

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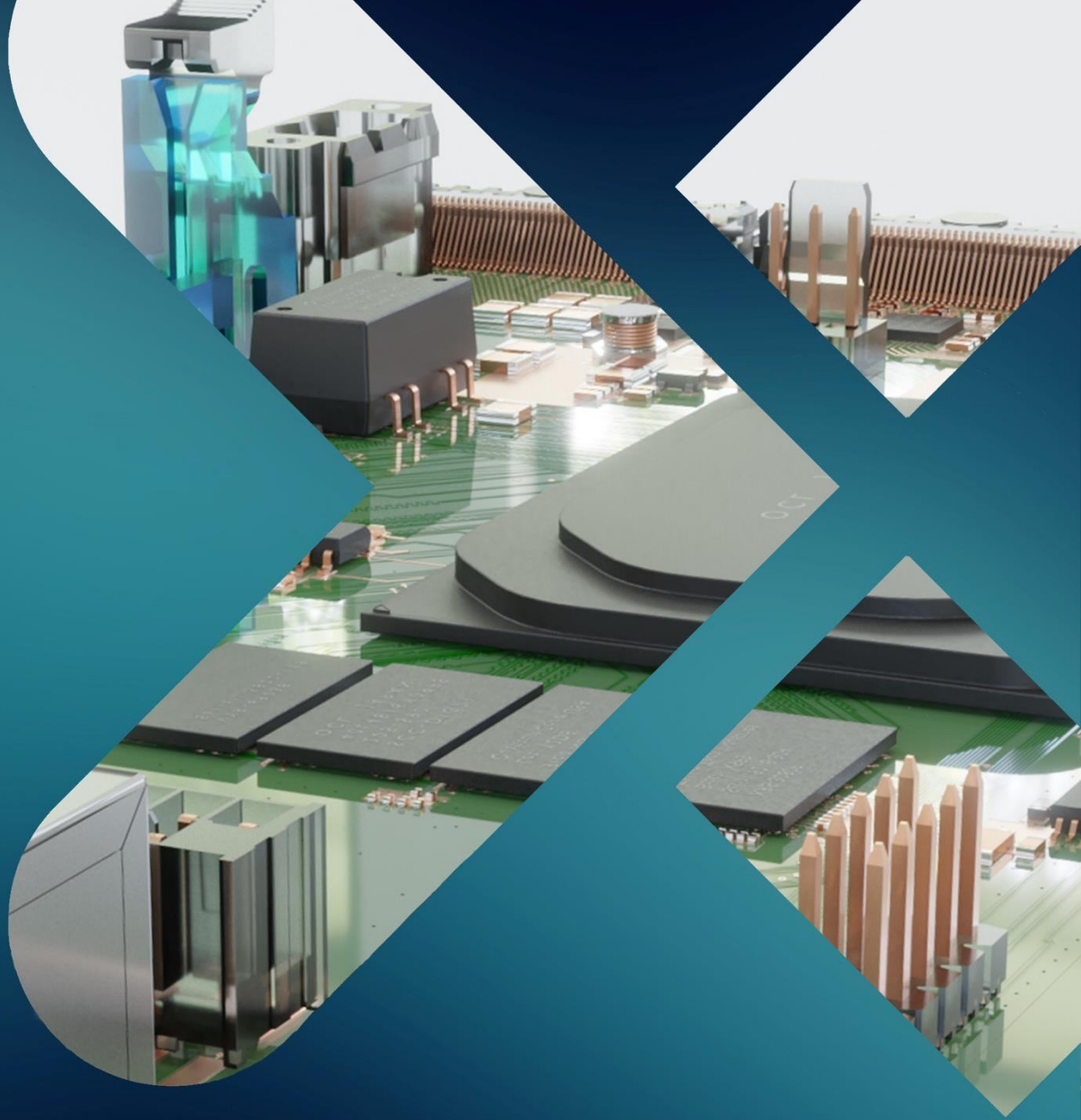
Thank You !

olivier.arnaud@siemens.com



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