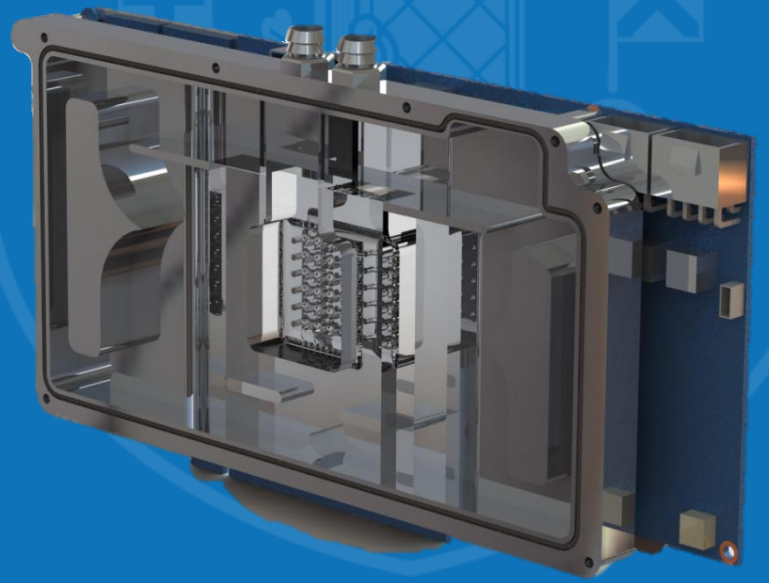
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

# Pushing Performance Limits: A Next-Gen Thermal Management Solution for High-Power GPUs

# CryoSync



Alex Knowles, Darragh Mullally, John Keogh, Darshan Dattatray Thakur, Rohit Rajaram Kolekar

Group 3

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# CryoSync

Competitive Edge

- Customizable Top Plate
- Hot swappable
- Lighting Options

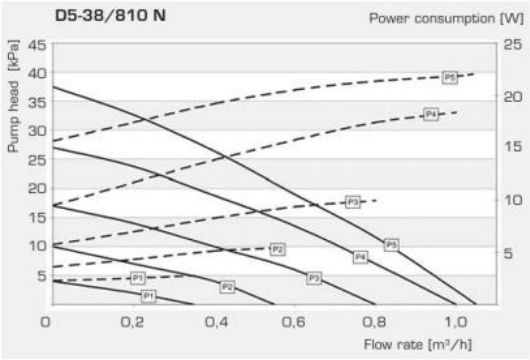
- Favourite Games
- Gamertags
- Esports Teams
- Online creators


# CryoSync

## Competitive Edge

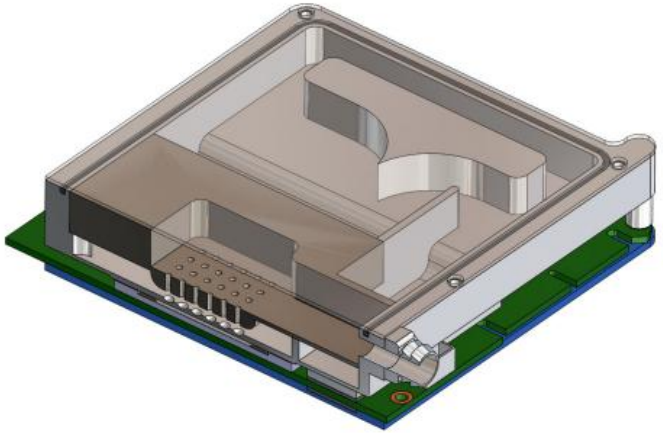
- **Dynamic Pump Speed**
- **Real time adaptive Pumping Power**

- **Mitigate rapid temperature fluctuations**
- **Dynamic smoothing on temperature peaks**

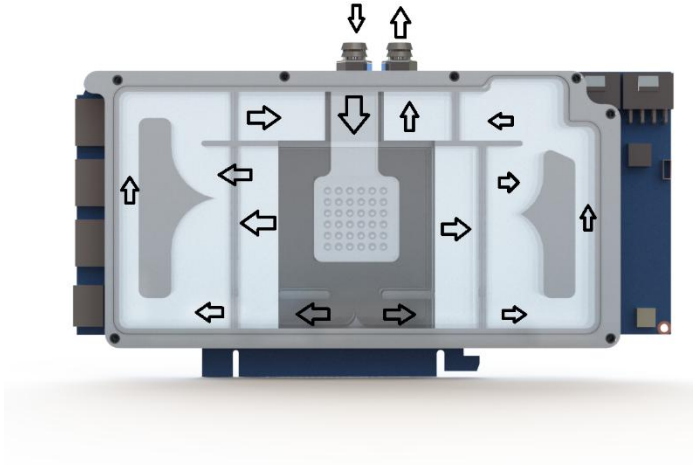


# CryoSync

## Key Thermal Features



**Jet plate and dimpled thermal interface surface to promote heat transfer and turbulence**

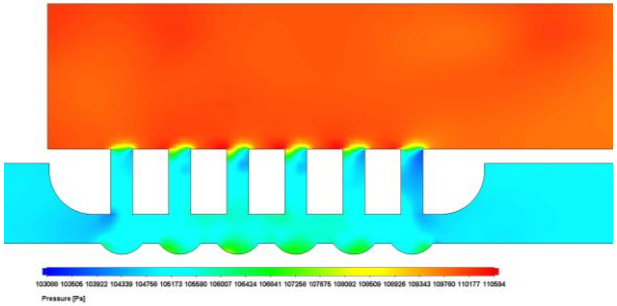


**Split path liquid flow to focus coolant where it is needed most**

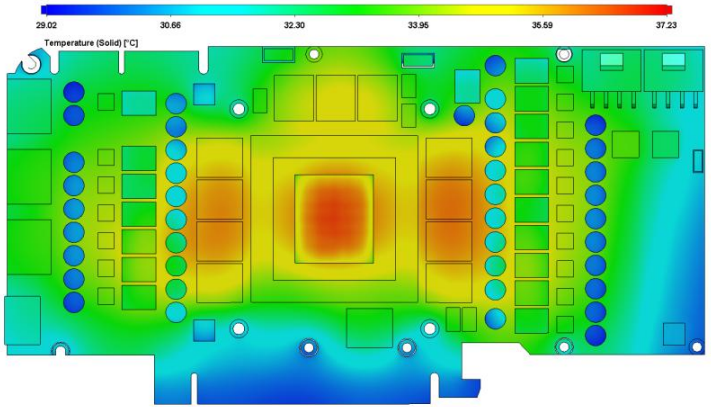
# Thermal Performance

## Analytical and Simulation results

Jet Plate Pressure Plot



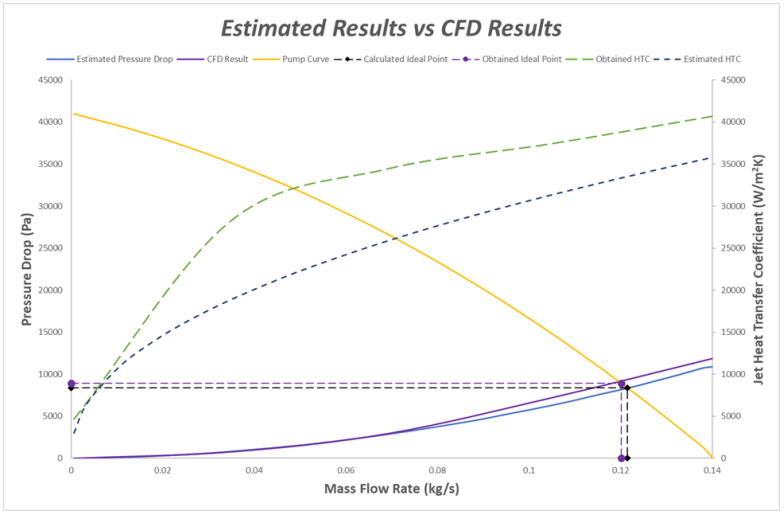

GPU Thermal Plot

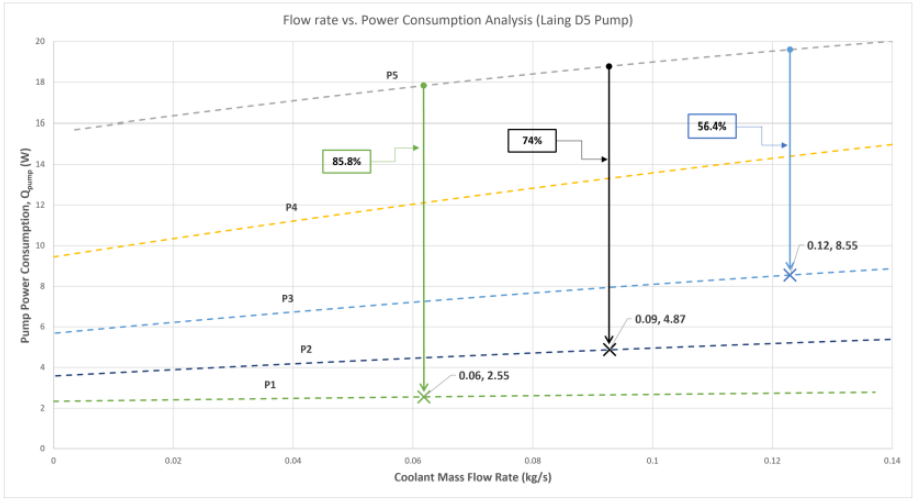



- **36.3 ° Average Temperature**
- **FOM: 5.26X10$^{-07}$**

# Thermal Performance

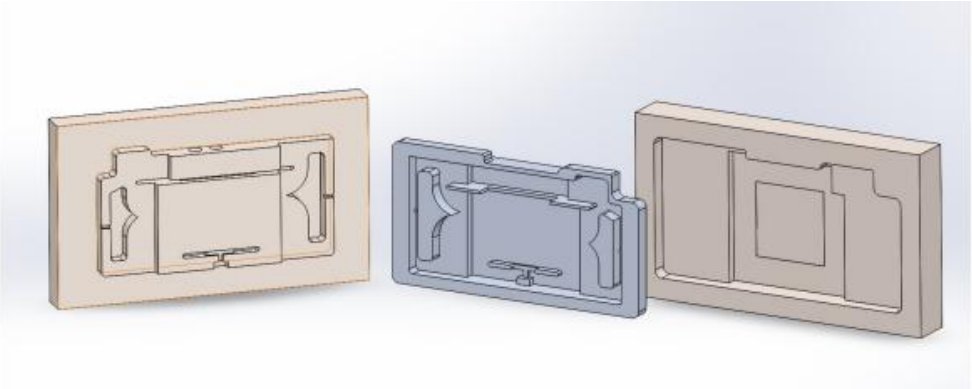
## Analytical and Simulation results

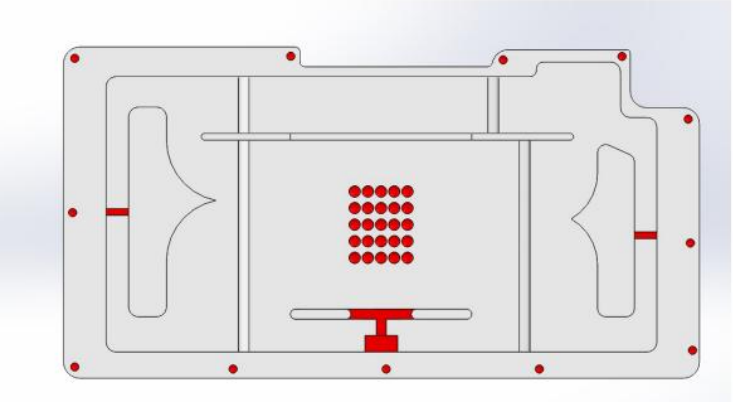



- **85.8% Power Reduction**
- **2.52°C Temperature Change**

# Design for Manufacture





- Die Cast Mass Production
- Minimal Post Processing Machining

- €175 MSRP
- €45 Base Materials Cost

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# Thank You