



Tempus Developments

Bringing it all, together

Introduction

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Agenda

- **Group History**
- Services & Sectors
- UoB engagement

Group History

- Established in 1982
 - Constantly at the forefront of computing technology
 - Intel and Microsoft Gold Partner
 - ISO 9001, MIRA, VCA
- Demonstrated continuous and substantial growth
 - Total of 6 companies within group, 100+ employees
 - Tempus Developments - UK
 - Tempus Developments Pty. - Australia
 - Tempus Computers - UK
 - Tempus Software - UK
 - Tempus MTAS - UK
 - Tempus HCM - Eire

Agenda

- Group History
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Services and Sectors

- Engage one company, engage them all
- Turnkey provider of project managed design, custom electronics, manufacturing, assembly, software, systems, installation and maintenance services to a varied client base
- 40,000+ worldwide installations of Tempus products
- A leading supplier of mobile data solutions to
 - ▣ Utility
 - ▣ Fire & Rescue
 - ▣ Police
 - ▣ Government
 - ▣ Military

Agenda

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- **UoB engagement**

UoB: CHP

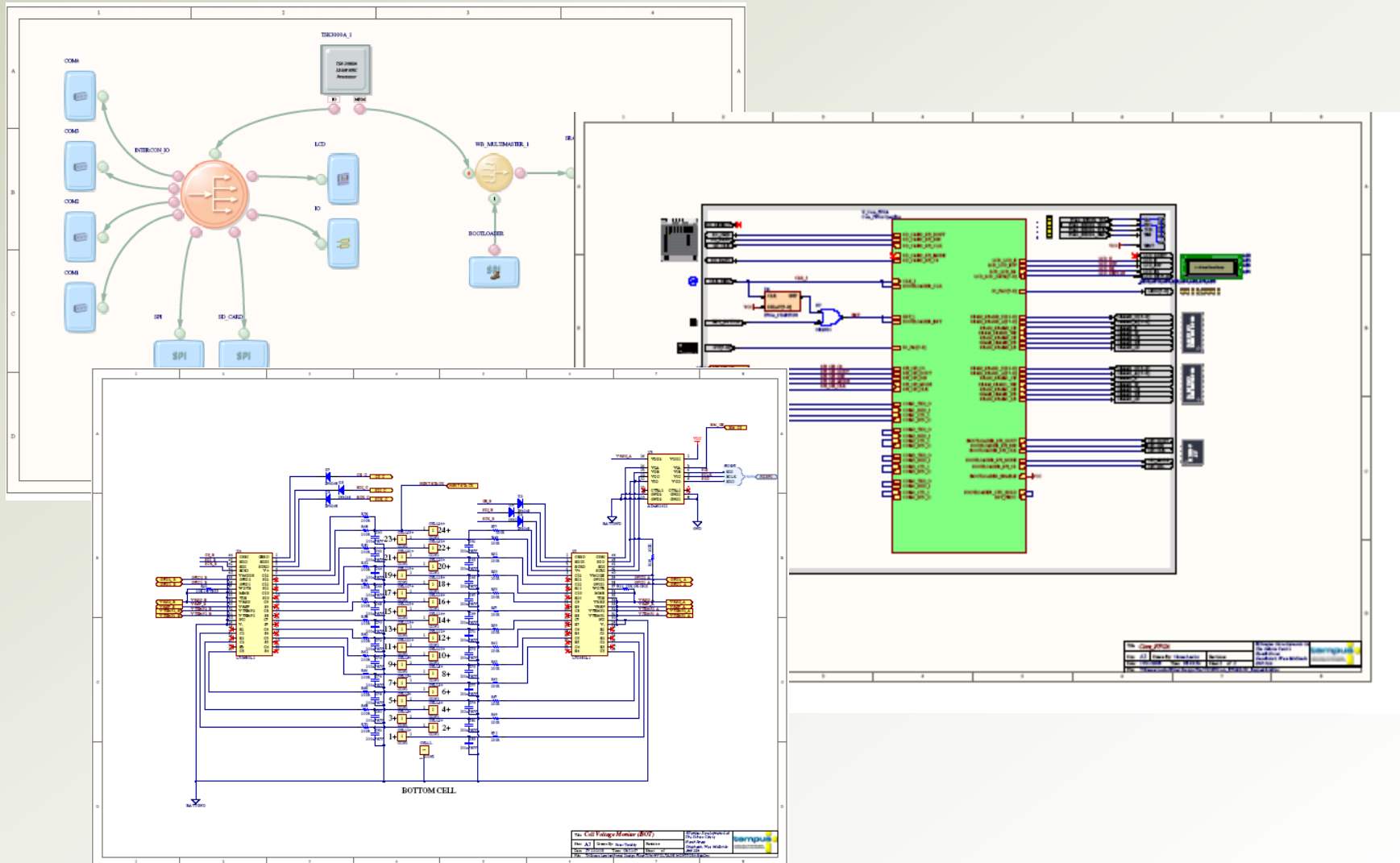
- Tempus developed CHP test rig with data acquisition
- Aim: significantly add shorten test times and provide valuable results
- Provide continuous testing, remote monitoring and error notification



UoB: HFCCAT MicroCAB

- Tempus developed H2 fuel cell and vehicle monitoring
- Involved design to delivery of:
 - ▣ Schematics
 - ▣ PCBs
 - ▣ Embedded applications
- One of first cell stack monitoring implementations in the world using Linear Technology IC under NDA
- Exploiting talents of dedicated CAD, CAE, mechanical design, software design experts

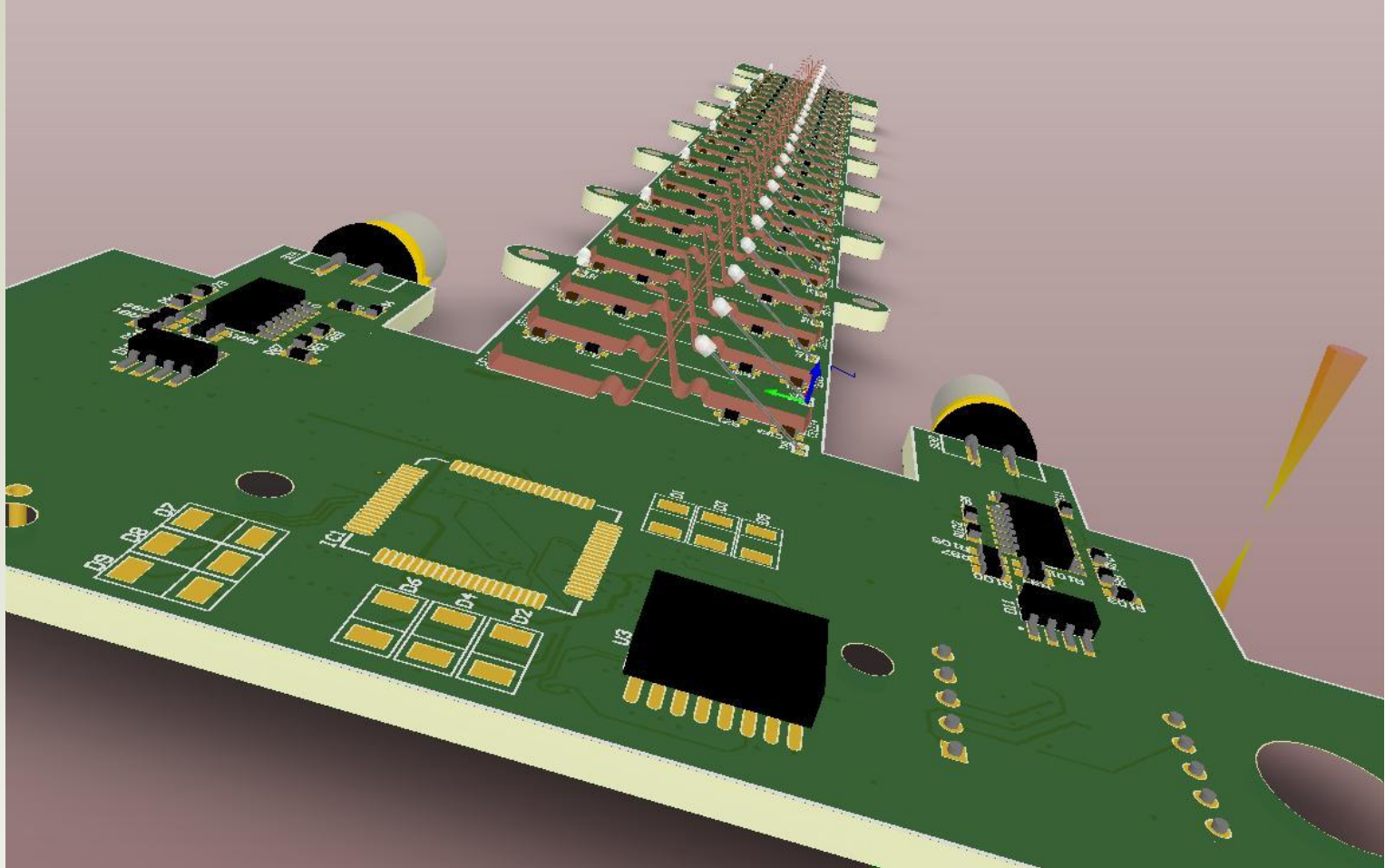
Measurement Schematics



Measurement Data

- ❑ Air & hydrogen flow in/out
- ❑ Air, hydrogen & external humidity
- ❑ External temperature
- ❑ Hydrogen cell start lag, stop lag
- ❑ Vehicle roll, pitch, GPS position, vibration & acceleration
- ❑ Hydrogen Cell Temperature, Voltage, & Current
- ❑ Motor voltage & current
- ❑ Air pressure

Fuel Cell PCB



Data Capture

- Data captured in vehicle by bespoke electronics and applications
- Transmitted to Tempus via mobile data service
- Tempus application receives data and stores in database
- Data made available via www download to UoB from Tempus website

Thank You

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