Commercial Liaison Report
– August 31, 2023

GREG ROSSOW / DARCY SMITH

KEYSIGHT TECHNOLOGIES, INC.

Agenda

- Industry News & Updates
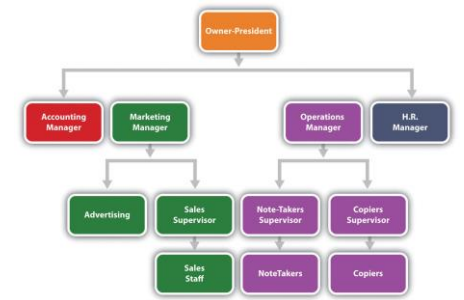- Technology Trends

Supply Chain Impacts Continue

"Companies are forging different paths for the supply chain, whether it be in Vietnam, Bangladesh, Central America or domestically. Because of that, supply chains are not as brittle as they were three years ago," he said. And so, if there is another shock — particularly if there's a China-centric shock — I think we'll be able to absorb it a little better than we had. … But you can't price in something like the invasion of Ukraine or a viral outbreak that shuts down the world — no systems are built to handle that smoothly."

Companies seeking to manage continued challenges related to:

- Inflation

- Uncertain customer demand

- Labor shortages

- Supply disruptions due to war

Source: CNN Business

Workforce Talent

"Perhaps the most urgent need is to redouble efforts to promote the industry as one that can offer exciting and meaningful careers developing and producing some of the most innovative technology that exists in any field."

A&D Companies facing unprecedented demand for critical & niche skillsets:

- Not always viewed as "destination of choice"

- Gaps in availability of workers for cleared roles

- Aging workforce

- Leadership experience lacking after Covid

Source: Aerospace Industries Association

Industry News

May 23, 2023 – NI Announces Software-Defined Battery Lab Solution to Accelerate Battery Validation

- Designed for electric vehicle battery validation labs
- the solution allows battery validation and data management & analysis of battery data

Source: NI

August 1, 2023 – Astronics Corporation Announces Growing Backlog of Electrical System Solutions for eVTOL Aircraft Manufacturers

- Accepted purchase orders to provide certain electrical power distribution, conversion, and vehicle charge control capabilities from ten eVTOL aircraft OEMs
- Includes high voltage conversion from 800 VDC (Volts Direct Current) through 1000 VDC converted down to 28 VDC, as well as low power distribution throughout the aircraft

Source: Astronics

Electric vehicle battery systems, emulation, & test

Industry News

July 21st, 2023 – Keysight First to Submit Protocol Conformance Test Case for 3GPP Release 17 Non-Terrestrial Networks Standards

- Verified test case submission includes protocol conformance for narrowband internet of things hosted over non-terrestrial networks
- Test case will enable device and module makers to begin verifying standards compliance of designs supporting advanced NTN features
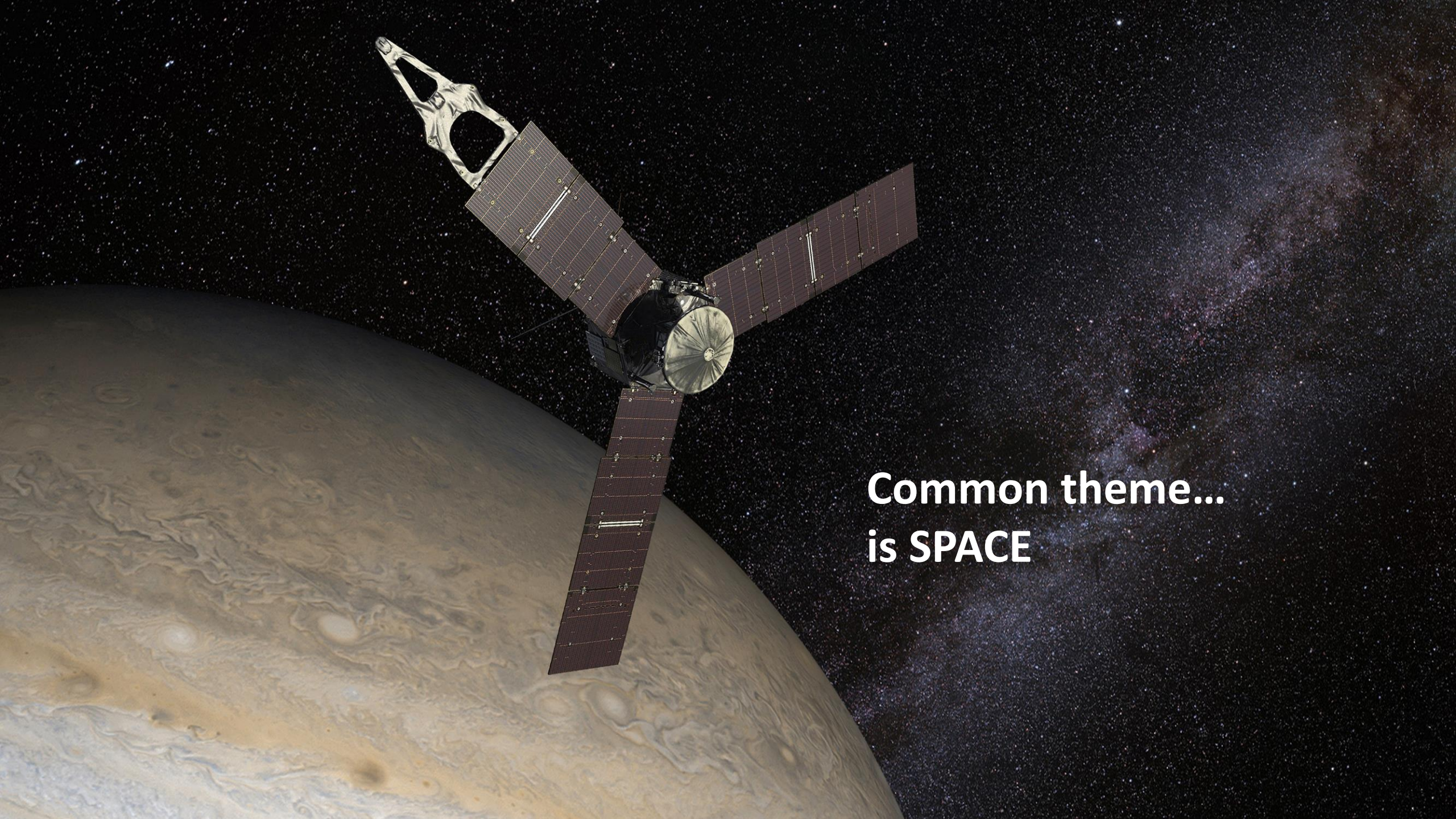
Source: Keysight

February 27th, 2023 – Rohde & Schwarz and MediaTek validate industry's first 3GPP Rel. 17 NTN NB-IoT protocol conformance test cases

- Rohde & Schwarz has partnered with MediaTek to verify the first NTN NB-IoT protocol conformance test cases according to 3GPP 36.523-1 on MediaTek's NTN IoT capable MT6825 chipset.
- This achievement sets the course for NTN device conformity approval

Source: Rohde & Schwarz
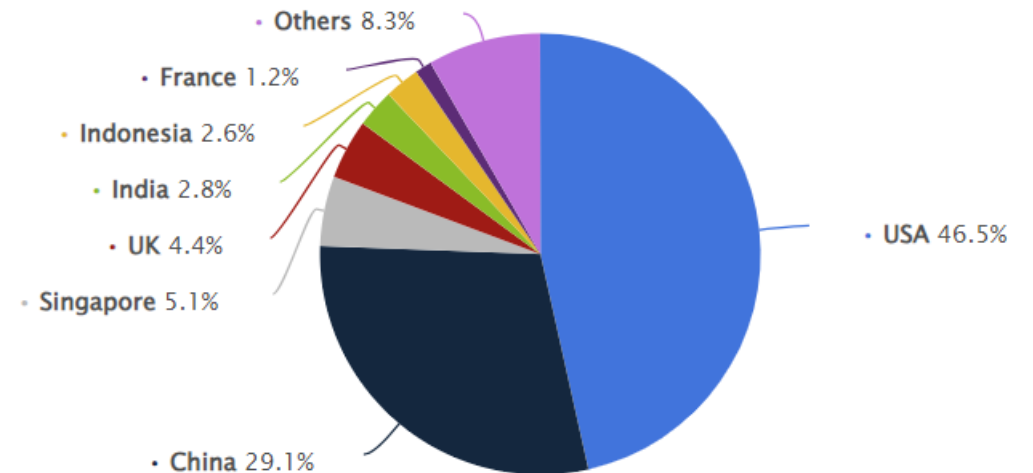
3GPP-based Satellite Communications

Common theme...
is SPACE

Space: The final frontier?

- Shift from Government space agencies to private sector investment
  - SpaceX, Blue Origin, Relativity Space, etc.

- Record number of launches in 2022 → **174**

- Key focus: Reusable launch vehicles and rockets
  - ↓ Costs | ↑ competitiveness

- US & China by far largest investors

Percentage distribution of the cumulative equity investment in space companies worldwide from 2013 to 2022, by country

- Others 8.3%
- France 1.2%
- Indonesia 2.6%
- India 2.8%
- UK 4.4%
- Singapore 5.1%
- China 29.1%
- USA 46.5%

Source: www.statista.com

Who's benefiting?

1 Defense Industry

- Geospace & atmospheric research
- tactical communication
- medium resolution imagery

2 5G

- Asia-Pacific huge growth expected
- Yinhe-1 commercial LEO 5G satellite
- 12,000 Starlink internet satellites

5 Aviation

- SATCOM solutions enable better airline operations and air traffic management

3 Media & Entertainment

- Increasing demand for internet & online streaming services such as Amazon Prime Video, Netflix, Hulu

4 Underserved Communities

- disparity in broadband services
- effected education, employment,
- healthcare, other societal factors

Commercial Liaison Report

What other technology trends are you interested in hearing more about?

- Artificial Intelligence

- Autonomy Systems / Autonomous Vehicles

- High-Energy Weapons

- Other?