MATERIALS THAT MATTER

Advanced Markets & Technologies

Enabling a mobile, intelligent, and electric future

May 20, 2021

Investor Event

Forward-looking Statements

This presentation contains forward-looking statements relating to future events and expectations that are based on certain assumptions and contingencies. The forward-looking statements are made pursuant to the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995 and relate to the Company's performance on a going forward basis. The forward-looking statements in this presentation involve risks and uncertainties, which could cause actual results, performance or trends to differ materially from those expressed in the forward-looking statements herein or in previous disclosures.

The Company believes that all forward-looking statements made by it in this presentation have a reasonable basis, but there can be no assurance that management's expectations, beliefs, or projections as expressed in the forward-looking statements will actually occur or prove to be correct. In addition to general industry and global economic conditions, factors that could cause actual results to differ materially from those discussed in the forward-looking statements in this presentation include but are not limited to: (i) the failure of any one or more of the assumptions stated above to prove to be correct; (ii) the risks relating to forward-looking statements and other "Risk Factors" discussed in the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2020 and additional risk factors that may be identified from time to time in future filings of the Company; (iii) the conditions to the completion of the Company's pending business combination transaction with Coherent, Inc. (the "Transaction") and the remaining equity investment by Bain Capital, LP, including the receipt of any required shareholder and regulatory approvals, and the risks that those conditions will not be satisfied in a timely manner or at all; (iv) the occurrence of any event, change or other circumstances that could give rise to an amendment or termination of the merger agreement relating to the Transaction, including the receipt by Coherent, Inc. ("Coherent") of an unsolicited proposal from a third party; (v) the Company's ability to finance the Transaction, the substantial indebtedness the Company expects to incur in connection with the Transaction and the need to generate sufficient cash flows to service and repay such debt; (vi) the possibility that the Company may be unable to achieve expected synergies, operating efficiencies and other benefits within the expected time-frames or at all and to successfully integrate Coherent's operations with those of the Company; (vii) the possibility that such integration may be more difficult, time-consuming or costly than expected or that operating costs and business disruption (including, without limitation, disruptions in relationships with employees, customers or suppliers) may be greater than expected in connection with the Transaction; (viii) litigation and any unexpected costs, charges or expenses resulting from the Transaction; (ix) the risk that disruption from the Transaction materially and adversely affects the respective businesses and operations of the Company and Coherent; (x) potential adverse reactions or changes to business relationships resulting from the announcement, pendency or completion of the Transaction; (xi) the ability of the Company to retain and hire key employees; (xii) the purchasing patterns of customers and end users; (xiii) the timely release of new products, and acceptance of such new products by the market; (xiv) the introduction of new products by competitors and other competitive responses; (xv) the Company's ability to assimilate recently acquired businesses and realize synergies, cost savings and opportunities for growth in connection therewith, together with the risks, costs, and uncertainties associated with such acquisitions; (xvi) the Company's ability to devise and execute strategies to respond to market conditions; (xvii) the risks to anticipated growth in industries and sectors in which the Company and Coherent operate; (xviii) the risks to realizing the benefits of investments in R&D and commercialization of innovations; (xix) the risks that the Company's stock price will not trade in line with industrial technology leaders; and/or (xx) the risks of business and economic disruption related to the currently ongoing COVID-19 outbreak and any other worldwide health epidemics or outbreaks that may arise. The Company disclaims any obligation to update information contained in these forward-looking statements, whether as a result of new information, future events or developments, or otherwise.

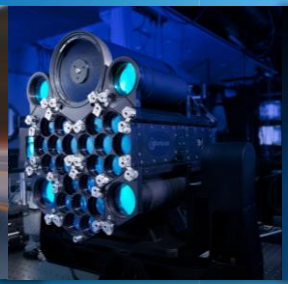
These risks, as well as other risks associated with the proposed transaction, are more fully discussed in the joint proxy statement/prospectus included in the registration statement on Form S-4 (File No. 333-255547) filed with the SEC in connection with the Transaction (the "Form S-4"). While the list of factors discussed above and the list of factors presented in the Form S-4 are considered representative, no such list should be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles to the realization of forward looking statements. Neither the Company nor Coherent assumes any obligation to publicly provide revisions or updates to any forward-looking statements, whether as a result of new information, future developments or otherwise, should circumstances change, except as otherwise required by securities and other applicable laws.

Expanding Into Growing Markets for 50 Years

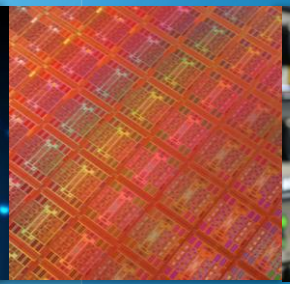
From inspired and humble beginnings 50 years ago as an engineered materials company, II-VI has emerged as a leader in multiple end markets.


Industrial


Automotive


Aerospace & Defense

Life Sciences


Semi-cap. Equipment


Communications


Consumer Electronics

A Leader in Engineered Materials

II-VI recently became a member of the World Economic Forum where we will focus our contributions on the Advanced Manufacturing and Production Platform, including technology adoption, workforce development, and the development of resilient supply chains.

II-VI Foundation

"We are mainly constrained by the quality of our materials and the limits of our imaginations."

Dr. Carl J. Johnson and his wife, Margot Johnson, built in 2007 the II-VI Foundation to support a great number of students around the world.

In 2021, II-VI pledged its support with a contribution of one million dollars.

II-VI's Global Actions with Global Impact

II-VI has entered into renewable-energy contracts for 15 facilities in the U.S. and Europe, representing about 20% of our annual energy consumption. We expect to expand the program to our manufacturing sites in Asia.

Clean Energy Program

Wastewater Treatment

Renewable Energy

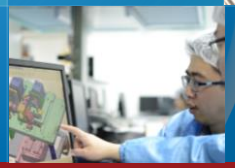
Clean Water Advocate

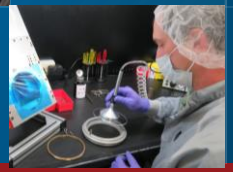
STEM

Environmental Resources Management

II-VI Global ESG-Related Initiatives & Activities

II-VI's Global Footprint





1971
Year Founded

22,000+
Worldwide Employees

75
Worldwide Locations

18
Countries

Today's Speakers

Giovanni Barbarossa	Chris Koeppen	Sanjai Parthasarathi	Julie Eng	Sohail Khan
				
Innovation Strategy	OCHIP Platform and Battery Technology	Optical Communications	3D Sensing	Wide-Bandgap Electronics

Innovation Strategy

Innovation Strategy

Six interlocking and time-tested criteria.

1. Leveraging technology platforms across markets
2. Differentiating products through engineered materials
3. Competitive vertical integration
4. Process-intensive technologies
5. Capital-intensive infrastructures
6. Performance-driven differentiation

Leveraging Technology Platforms Across Markets

1

We invest in technology platforms that we can leverage across multiple end markets and applications, because they are more resilient to individual market cycles. Such a strategy enables us to achieve steadier returns from the investments and, therefore, sustain our investment momentum to scale the platforms and leverage them across adjacent markets, thereby maximizing our returns on investments throughout the cycles.

Example: gallium arsenide technology platform

Products Differentiated Through Engineered Materials

2

We target to differentiate our products by engineering materials that impart functional performance and reliability advantages that are valued by our customers because they differentiate their products. We prefer to develop and manufacture products with the best functional performance and quality, with the lowest cost of ownership, and with the most compelling value for our customers.

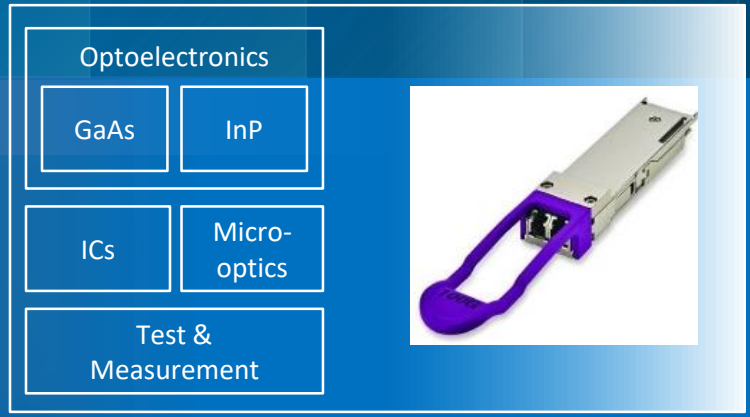
Examples: zinc selenide, diamond, sapphire, and ceramic materials

Competitive Vertical Integration

3

We evolve over time to be vertically integrated when it makes competitive sense, and not necessarily to maximize our margins, but rather to remain cost-competitive while protecting our intellectual property, and to have full and direct control of the capacity and quality of our manufacturing operations.

Example: datacom optoelectronics product lines



Process-, Capital-Intensive & Performance-Driven

4
5
6

We invest to research and develop technology platforms that are process-intensive and require complex manufacturing infrastructures, that are capital-intensive, and rely on performance-driven differentiation to lead the market. We like products that can't be easily reverse-engineered, and that require capital investments in proprietary manufacturing equipment that cannot be purchased on the open market.

Example: silicon carbide platform

SiC *Technology Platform*

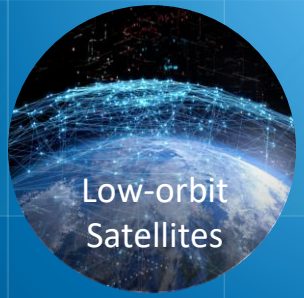
75 mm — *Since Late 1990s*

100 mm

150 mm

200 mm — *2015*

Market Megatrends



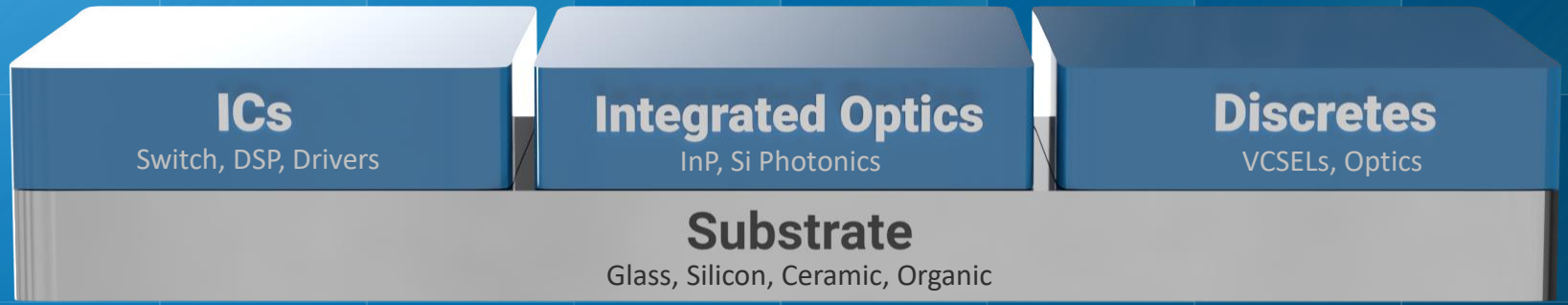
OCHIP Platform

OCHIP Technology Platform

OCHIP

OPTOELECTRONICS CHIP HYBRID INTEGRATION PLATFORM

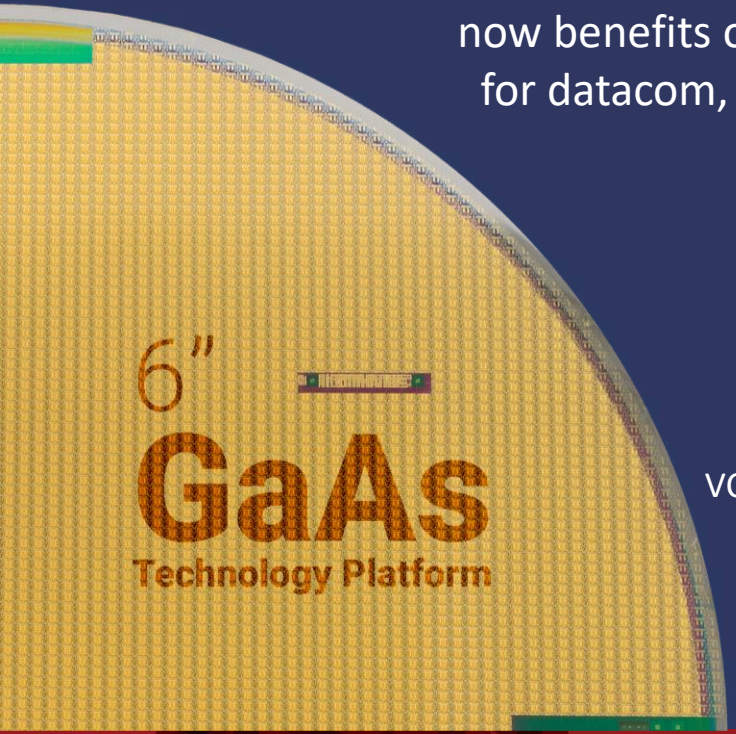
Next-generation modular technology platform enabling ultrahigh density and ultrahigh data-rate optoelectronics integration and wafer-scale assembly.

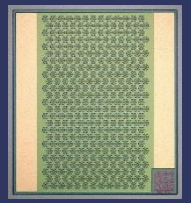


Optical Communications | Commercial Sensors | Life Sciences Sensors

6-Inch GaAs Benefits Multiple Applications

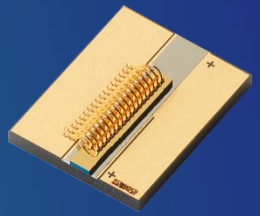
6-inch GaAs technology developed for 3D sensing now benefits our semiconductor laser product lines for datacom, industrial, and aerospace & defense





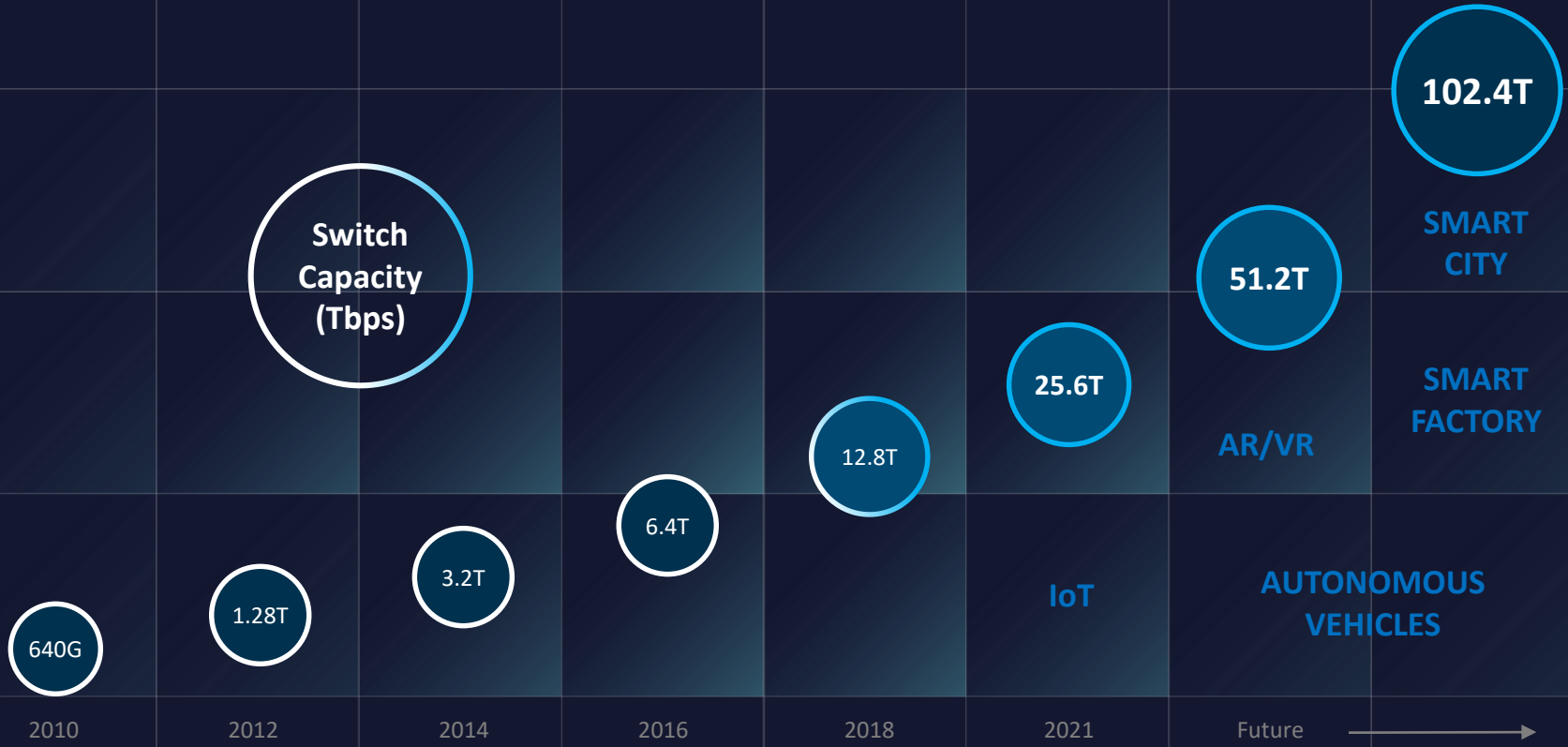
VCSEL for 3D Sensing

VCSEL for Datacom



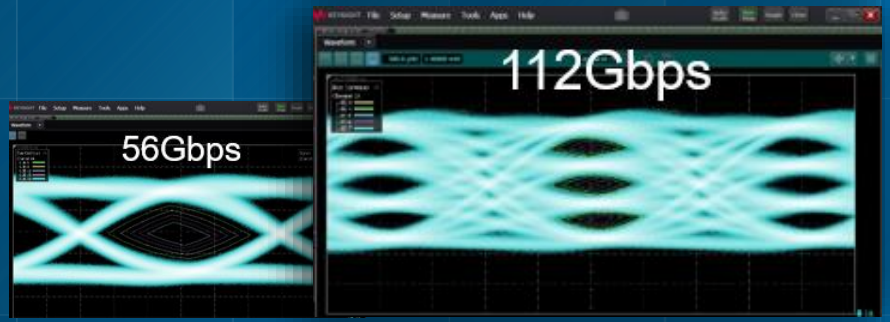
Edge-Emitter for Industrial and A&D

Switch Capacity Growth in Datacenters



100G PAM-4 VCSEL Technology

For such high speeds, power dissipation and signal integrity become a challenge, which OCHIP technology can solve.



COGA Technology for Manufacturing Scalability

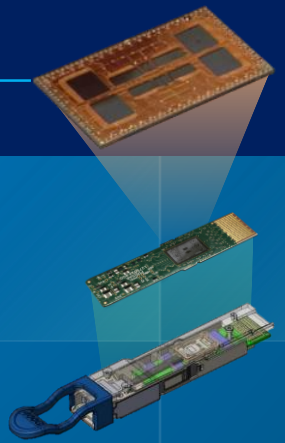
ICs
DSP, Drivers

Discretes
VCSELs, Optics

Substrate
Glass

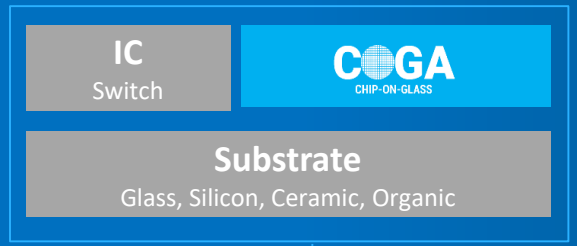
COGA
CHIP-ON-GLASS

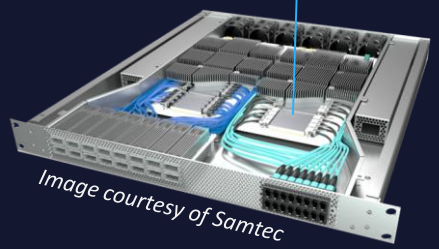
8” glass substrate wafer



COGA enables automated multi-chip module assemblies directly on glass substrates, increasing product density, production speed and lowering assembly cost.

Co-Packaged Optics Reduces Power Consumption





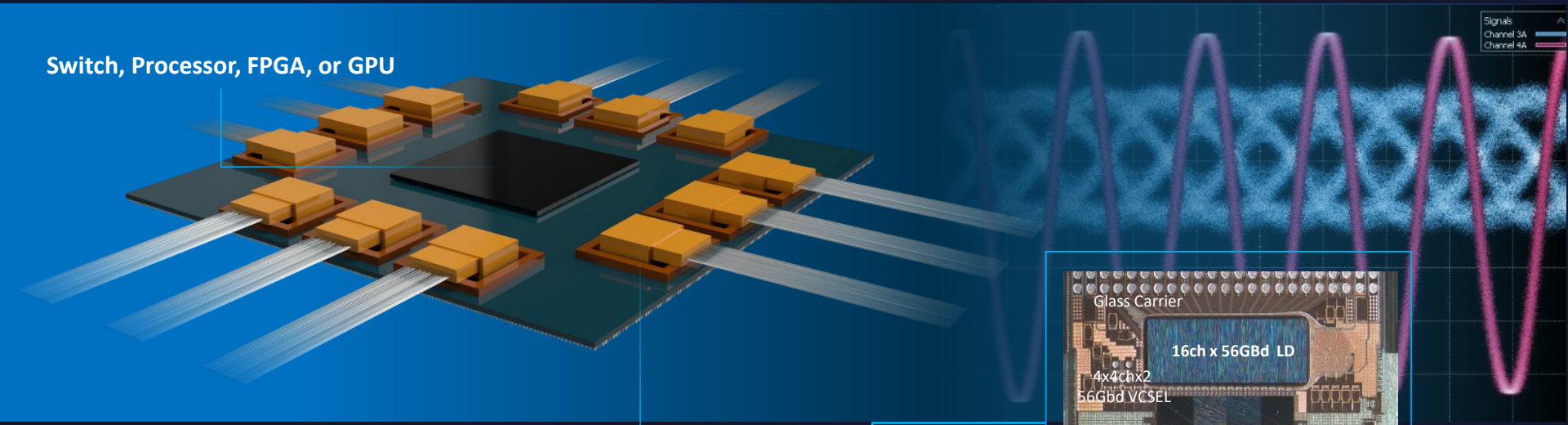
50% - 75% Power Reduction

Co-packaged optics could potentially reduce the power of a 100 Tbps switch fully equipped with transceivers from half to a quarter, depending on the exact configuration.

Co-Packaged Optics (CPO) Modules:

- Multiple transceiver integration
- Bring optics close to the switch
- Save power, improve density

Future Chip-to-Chip Interconnects

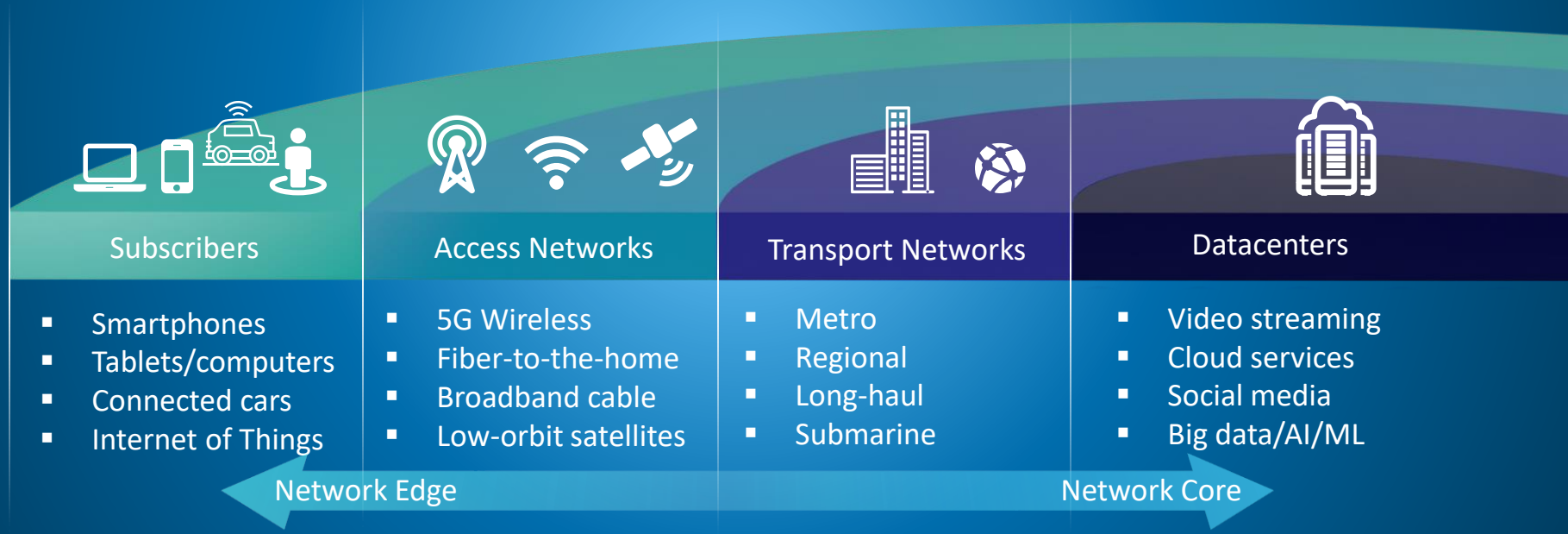


- Artificial Intelligence
- Machine Learning
- High-Performance Computing

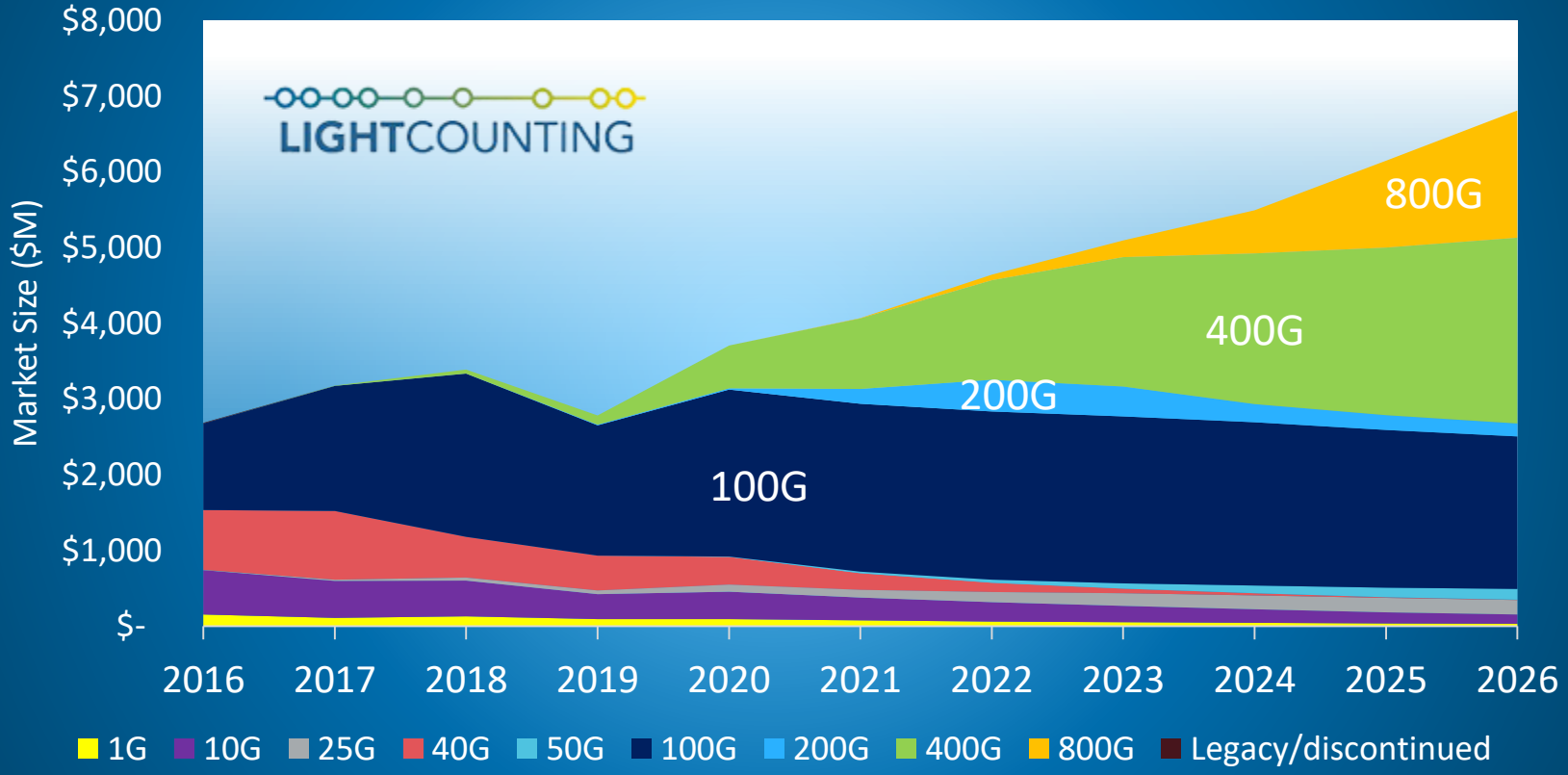
Optical Communications

Communications Infrastructure From Edge to Core

New applications enabled by the digital transformation continue to drive increased bandwidth at the edge of the network that in turn drives the need for bandwidth upgrades throughout the entire optical network infrastructure.

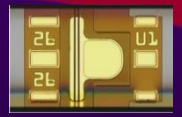


Market Evolution: Drive to Higher Speeds

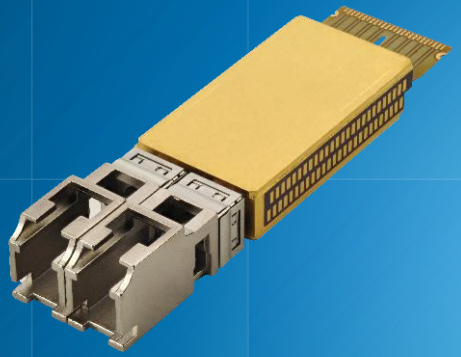


Semiconductor Lasers for Optical Communications

The laser is at heart of any transceiver and is a key enabling component for higher-speed optical communications.

VCSEL	Directly Modulated Laser (DML)	Externally Modulated Laser (EML)	Tunable Laser
			
Up to 300 m	Up to 10 km	Up to 40 km	1000’s of km
			

Introducing the IC-TROSA



Built on industry-leading indium phosphide technology platform.

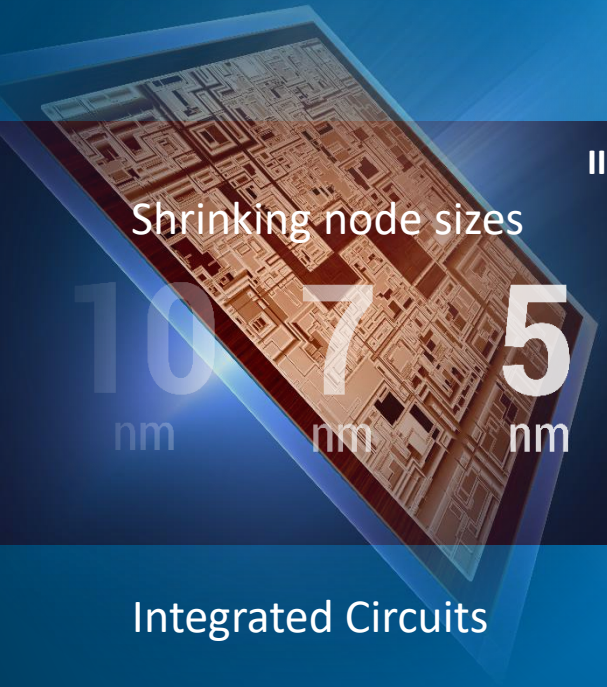
InP
TECHNOLOGY PLATFORM

IC-TROSA

INTEGRATED COHERENT TRANSMITTER-RECEIVER OPTICAL SUBASSEMBLY

EUV Lithography

II-VI laser optics and engineered ceramics enable the emergence of 5 nm nodes in leading-edge ICs.



Integrated Circuits

II-VI PRODUCTS FOR EUV LITHOGRAPHY:

- Structural ceramic subsystems
- EUV source focusing optics
- Power amplifier diamond optics
- CO2 laser optics

EUV Lithography System

IC-TROSA Seamless Integration into 400G QSFP-DD

400G QSFP-DD

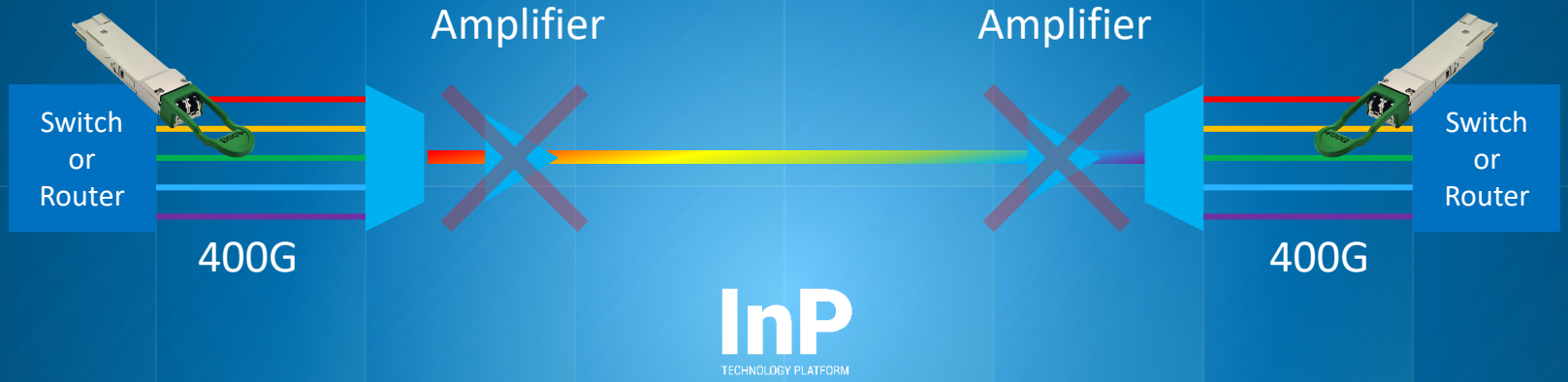
IC-TROSA
INTEGRATED COHERENT TRANSMITTER-RECEIVER OPTICAL SUBASSEMBLY

The IC-TROSA is easy to integrate into a pluggable form factor like QSFP-DD or OSFP with any DSP.

InP
TECHNOLOGY PLATFORM

InP technology enables high output power.

High Output Power of IC-TROSA Reduces Capex



The intrinsic ability of indium phosphide to achieve higher output power than silicon photonics enables a simplification of the network architecture, with fewer optical amplifiers in metro and regional networks.

Benefits of the Pluggable Optical Line System (POLS)

POLS collapses the functionality provided by a rack-mounted optical line system into a pluggable device.

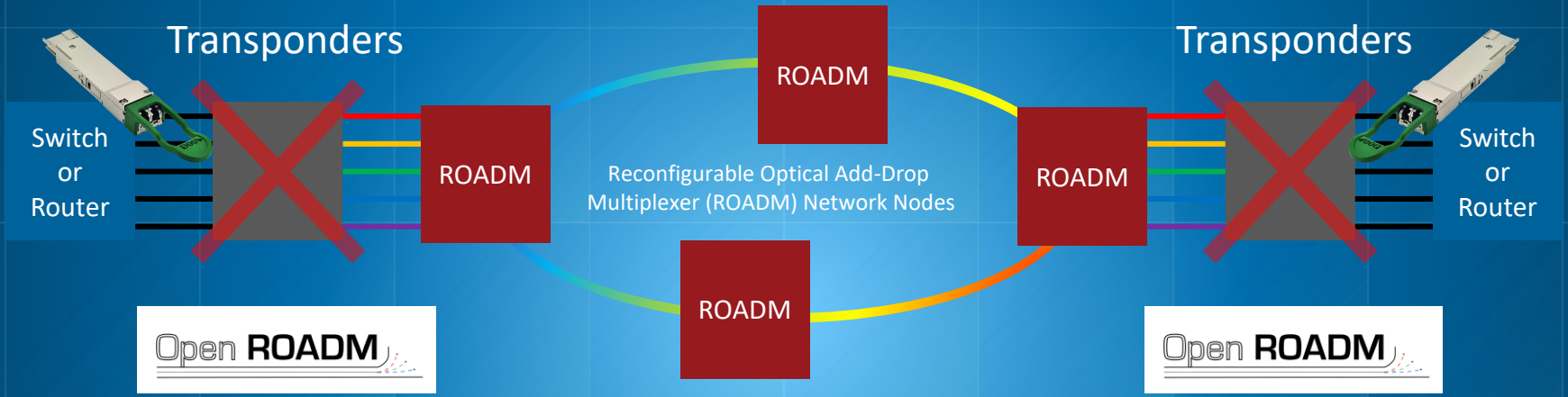
- Compactness: zero RU
- Cost reduction: ~5x
- Power reduction: ~50%
- Pluggability: Standard form factor
- Easy installation: Asymmetric front panel connectors
- Colorless optical mux/demux
- Simple: Auto-provisioning & self-configuring
- Future proof for evolution and further integration

ECOC EXHIBITION INDUSTRY AWARDS 2020

2021 LIGHTWAVE INNOVATION REVIEWS

Plug & Play

IC-TROSA is a Leading Technology for Open ROADM

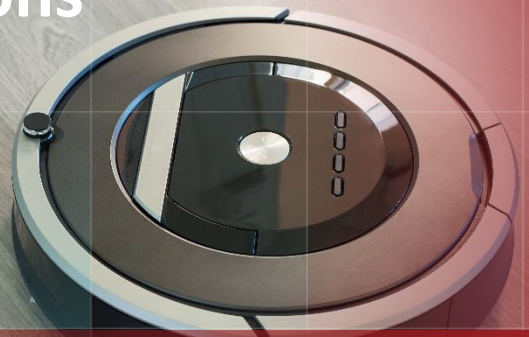


The Open ROADM consortium is redefining reconfigurable metro and long-haul networks to be built using standardized, interoperable network elements, controlled through open software interfaces.

3D Sensing

VCSELs in New Applications

Proximity sensing in earbuds



Robotic vacuum cleaners

Warehouse robots

Food delivery robots

VCSELs on Front Side of Smartphones

Facial biometrics to unlock the screen or to authenticate a user performing a secure financial transaction.

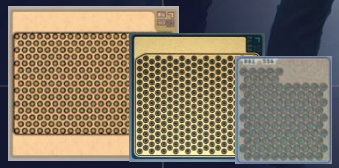
VCSELs for Automotive In-Cabin Sensing

Monitoring

- Alertness of the driver
- Position of passengers

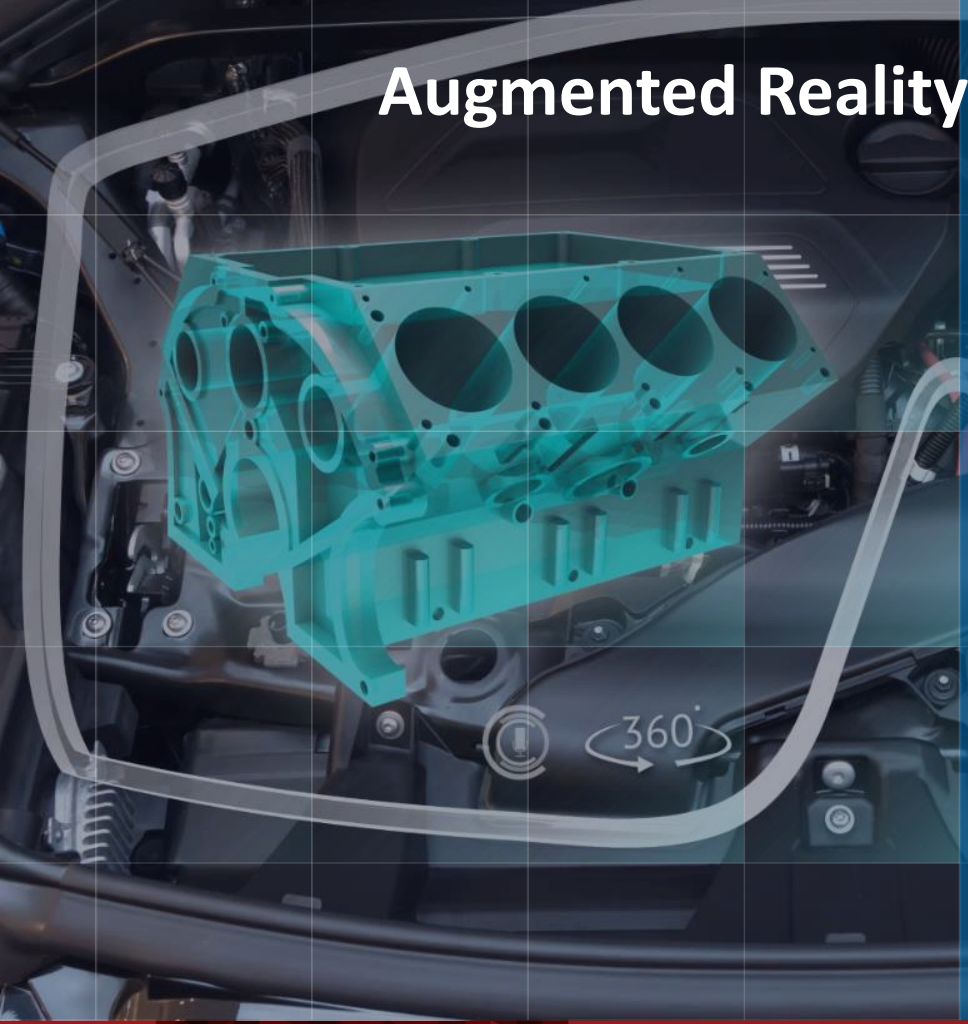
To prevent accidents or reduce injury with more accurate and timely deployment of airbags.

VCSELs for Augmented Reality



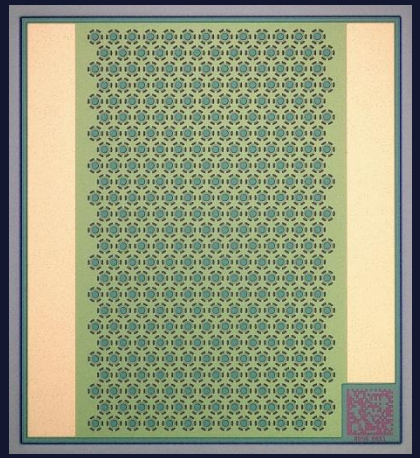
Users can check the way a piece of furniture looks inside their home before making a purchase online.

Augmented Reality in Smart Factories

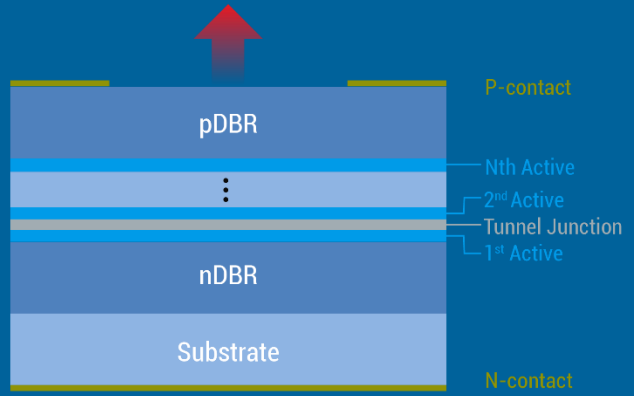


Technicians wear AR headsets to visualize the step-by-step assembly of complex systems or to be guided efficiently through elaborate troubleshooting procedures and to control quality.

Toward Higher Power: Multi-Junction VCSELs



Double-junction
VCSEL array chip



Double-Junction Performance

- 4.9 W peak power at 2.5% duty cycle
- 52% power-conversion efficiency at 2.7 A
- >100 W peak power at 0.01% duty cycle

Vertical Integration: VCSEL Illumination Modules

U.S. and European transportation safety regulators are increasingly recommending or requiring driver and occupancy monitoring systems in vehicles.

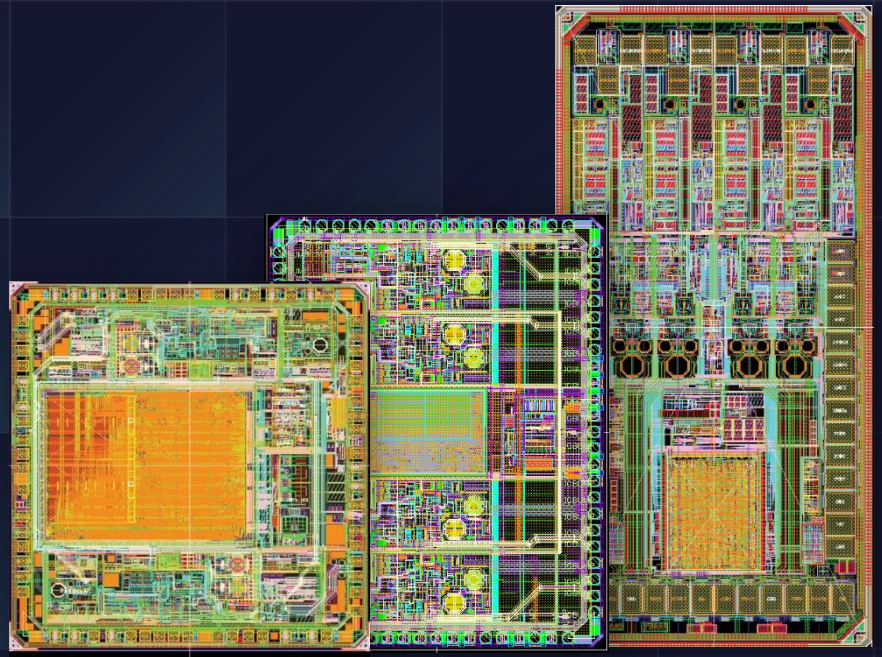
VCSEL illumination module

IC Design Capabilities for Sensing

World-class CMOS analog and digital IC design team with almost two decades of experience in designing drivers for optoelectronics.

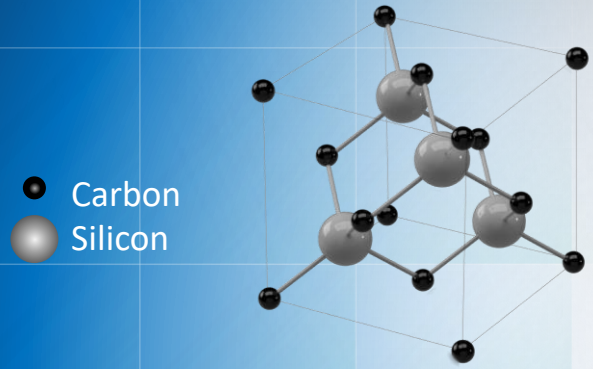
350 million ICs shipped within transceiver products over the past 10 years.

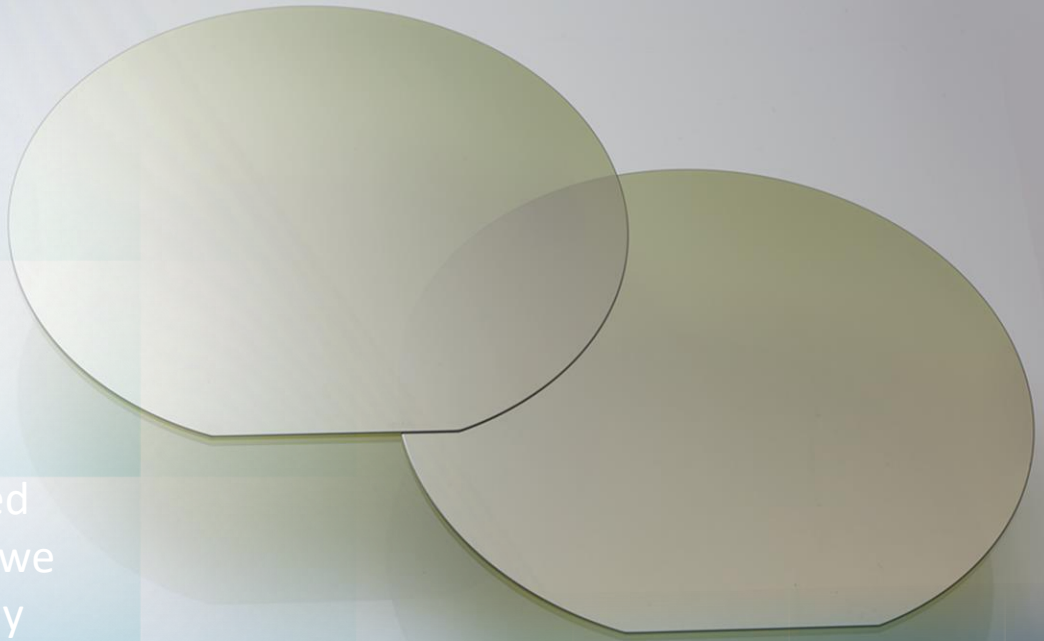
IC designs for VCSEL arrays will leverage co-packaging as part of the OCHIP platform.



Wide-Bandgap Electronics

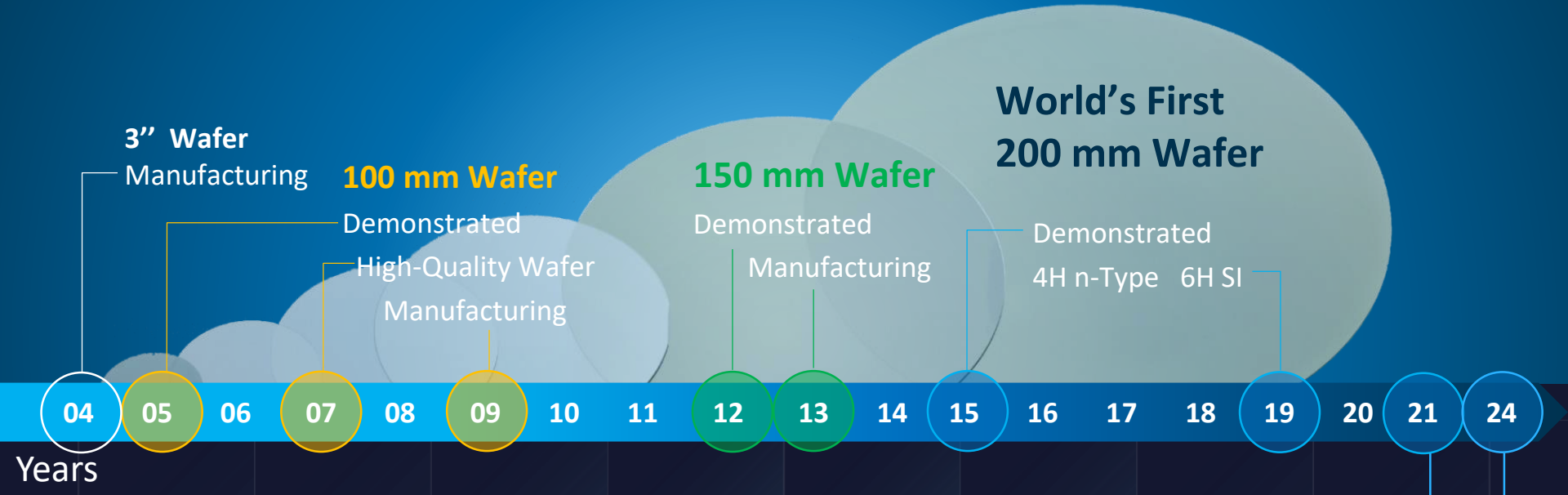
Growing Perfect SiC Crystal Structure is Critical





It’s important that each atom of silicon and carbon finds its intended location in the crystal structure as we grow it in our furnaces at extremely high temperatures.

Two Decades of SiC Materials Innovation



Maintaining a perfect crystal structure becomes more challenging with larger substrate diameters.

Advantages of SiC over Si for Power Electronics

10%

Increases driving range of electric vehicles by 10% or more on a single charge.

°C/°F

Operates at much higher temperatures, eliminating the need for cooling components.

V 10x A 5x

Sustains voltages 10 times higher and carries currents of up to 5 times higher, enabling smaller devices.

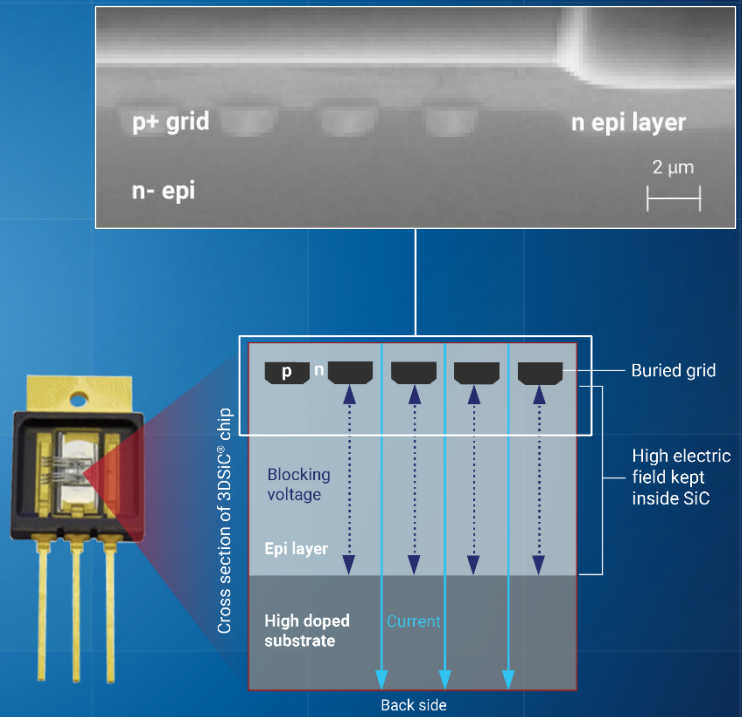
10x

Switches 10 times faster, reducing the size and complexity of circuits.

Leveraging 3DSiC® for >1 kV SiC Devices

3DSiC®

3DSiC® enables the growth of very thick epitaxial layers in multiple regrowth steps to create buried-grid structures that enable power devices operating at >1 kV.



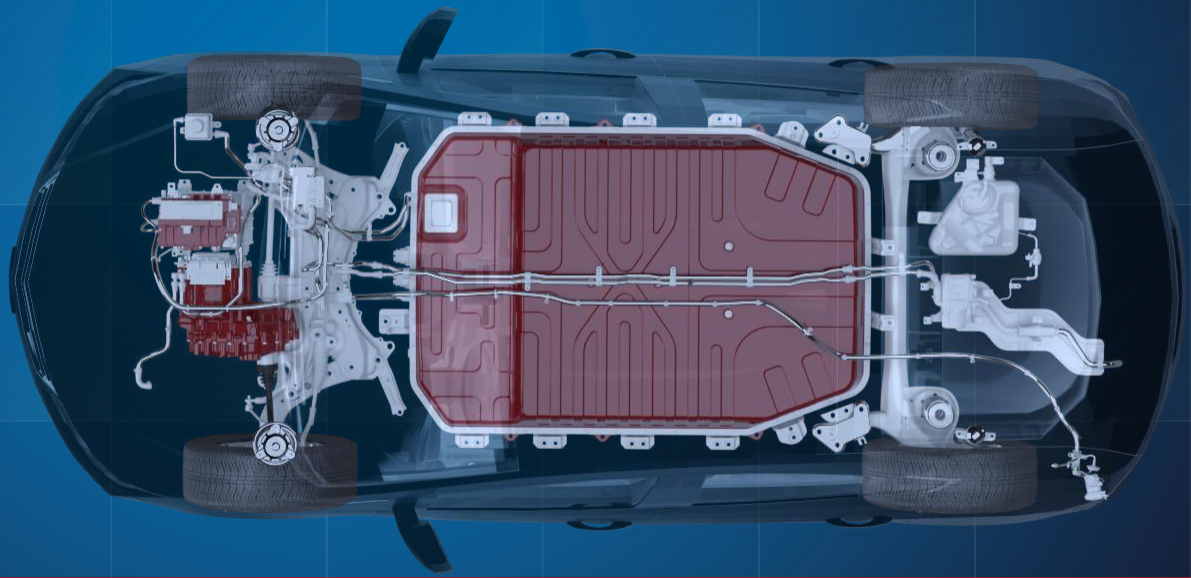
800 V Batteries Require >1 kV SiC Devices

800 V batteries will enable powerful cars with faster acceleration, but also lower cost and faster battery charging.

SiC Power Electronics for EV System Integration

The EV industry is moving toward system integration to reduce size, weight, and cost. This requires power electronics subsystems that are more compact to fit into a smaller space.

- Integration of multiple powertrain converters
- Integration of the motor drive with the inverter

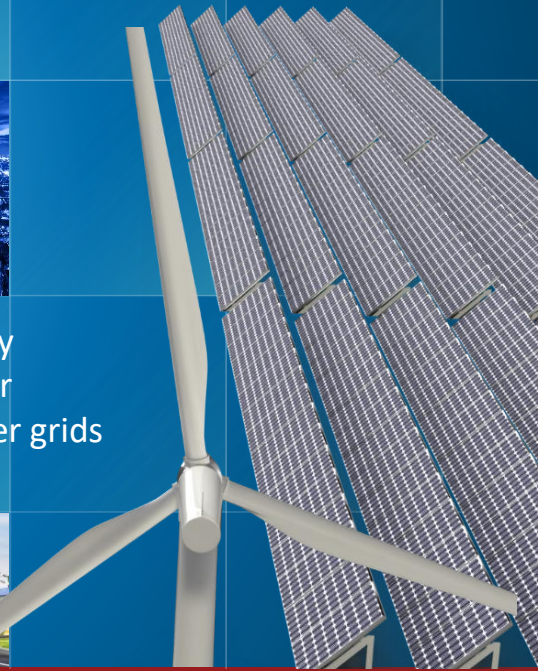


Additional Markets for >1 kV SiC Devices

Electric trains
Electric planes

Industrial robots
Datacenters
Heavy machinery

Solar energy
Wind power
Smart power grids
Microgrids



Accelerating Time-to-Market with GE Technology

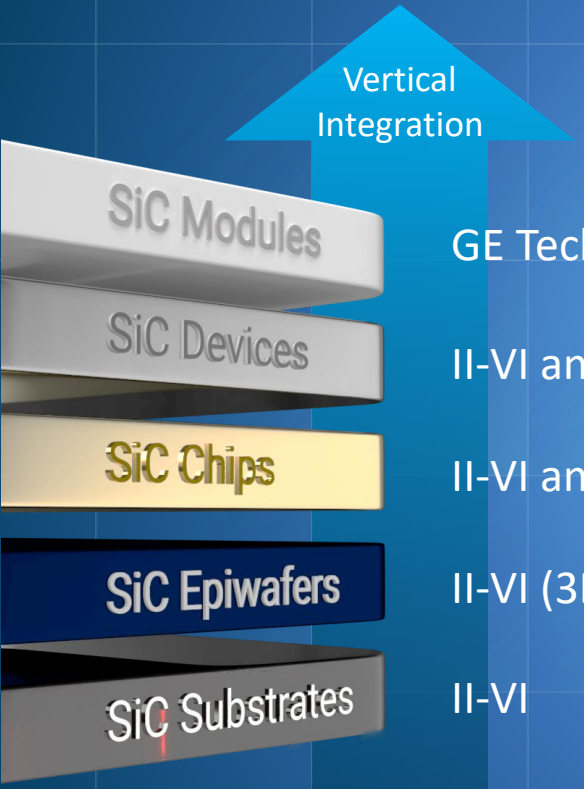
In June 2020, II-VI licensed technology from GE to manufacture silicon carbide devices and modules for power electronics.

GE recent milestones in SiC

2015	6” device fabrication and packaging.
2017	200°C rated surface mount. 1.2 kV, 25 mΩ Gen3 AEC-Q101 qualified.
2020	Aviation industry-first SiC converter with GE SiC certified.

GE is a trademark of General Electric Company

Leveraging a Vertically Integrated SiC Platform



GE Technology

II-VI and GE Technology

II-VI and GE Technology

II-VI (3DSiC®)

II-VI

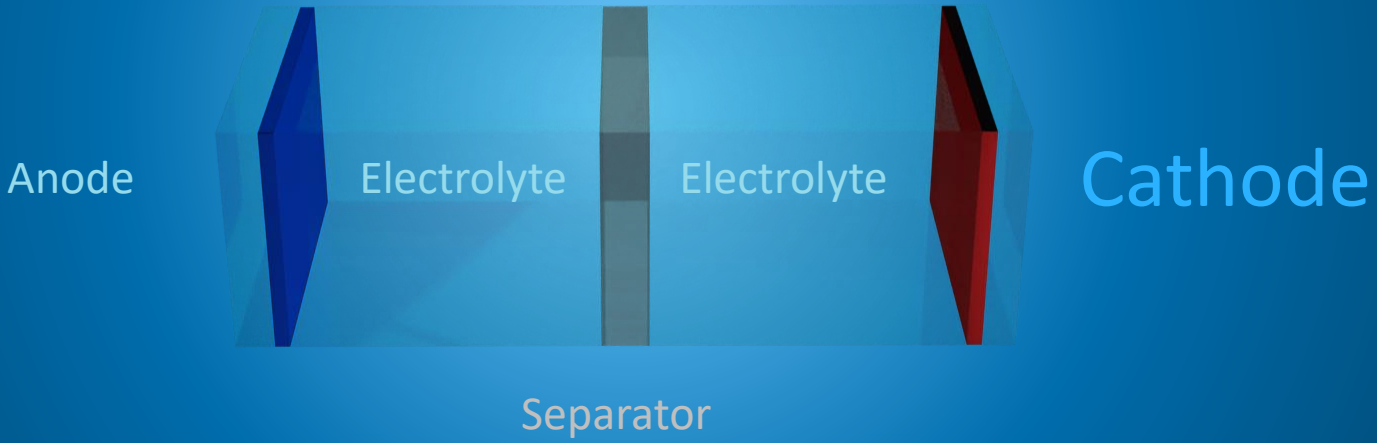
This market, which is still at an early stage, could quickly take off within a few years and reach $30 billion dollars by 2030.

(1) Internal company estimates. Includes module and device TAM.

Battery Technology

Lithium-ion Battery

II-VI has been developing cathode technology since 2014.



Higher Energy Storage With Sulfur

Sulfur-based cathode technology can store a lot more energy than the current cobalt-based technology.

Existing Cathode Technology

$LiCoO_2$

Lithium cobalt oxide

27
Co
Cobalt

II-VI Cathode Technology

S-C

Sulfur-carbon

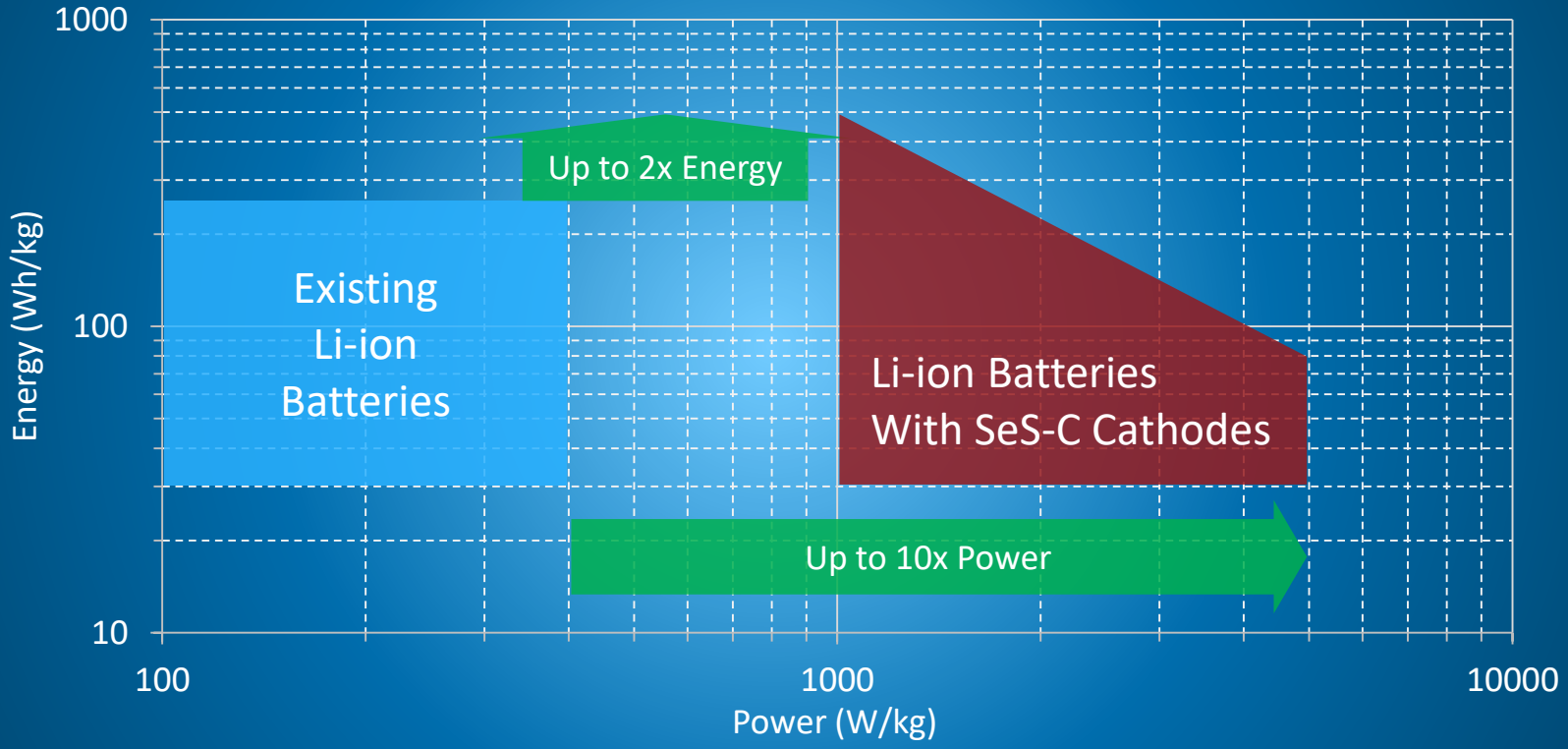
16
S
Sulfur

II-VI Cathode Technology Enabler

CARBON SKELETON STRUCTURE

At the Carl J. Johnson Advanced Materials Technology Center, II-VI engineered a proprietary skeleton structure made of carbon atoms that keeps sulfur from migrating to the electrolyte, making sulfur cathode technology viable for batteries for the first time.

II-VI Cathode Technology Performance



Sulfur Cathodes Enables Stable U.S. Supply Chain

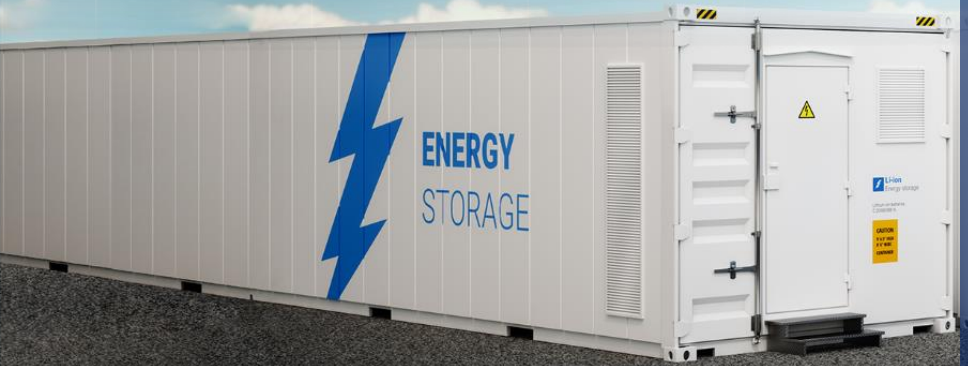
	27 Co Cobalt	16 S Sulfur
% of Global Resources in U.S.	<1%	20%
Conflict Mineral	Yes	No

2020 U.S. Geological Survey

II-VI cathode technology is cobalt-free.

Energy Storage at Scale on Utility Grid

U.S. states with energy storage mandates, targets and goals:*



- California
- Massachusetts
- Nevada
- New Jersey
- New York
- Oregon
- Virginia

*Source: Energy Storage News - https://www.energy-storage.news/

ENERGY STORAGE NEWS*

*"**New York** Climate Leadership and Community Protection Act: Energy storage target of 3 GW of storage deployment by 2030 to support the transition away from reliance on fossil fuels."*

*"The **California** Independent System Operator (CAISO) believes that the amount of battery storage on its transmission system will increase four-fold between late 2020 to this summer, from about 250 MW of storage resources connected to the grid, to 2,000 MW by the beginning of August 2021."*

Selenium-Sulfur Mix Optimized for the Application

II-VI cathode technology can incorporate a mix of selenium and sulfur to engineer optimal tradeoff in energy storage capacity vs. power delivery.

Greater sulfur content maximizes energy storage.

Greater selenium content maximizes power delivery and enables faster battery charging times.

Selenium-Sulfur-Carbon Cathodes

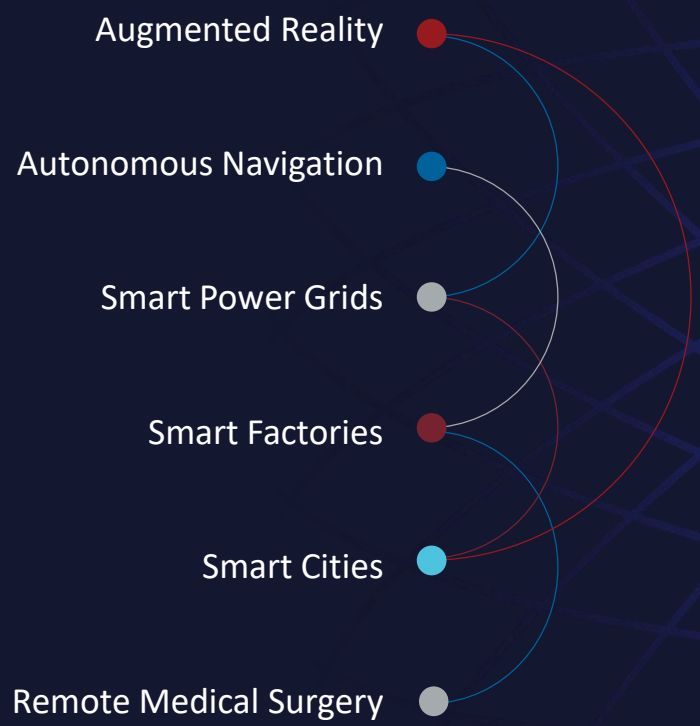
Material	Theoretical Capacity (mAh/g)
Se-C	675
Se_5S-C	842
Se_5S_2-C	961
Se_5S_4-C	1119
SeS-C	1175
Se_3S_5-C	1300
SeS_2-C	1342
SeS_7-C	1550
S-C	1675

Enabling a mobile, intelligent, and electric future

Communications, Computing & Sensing Convergence

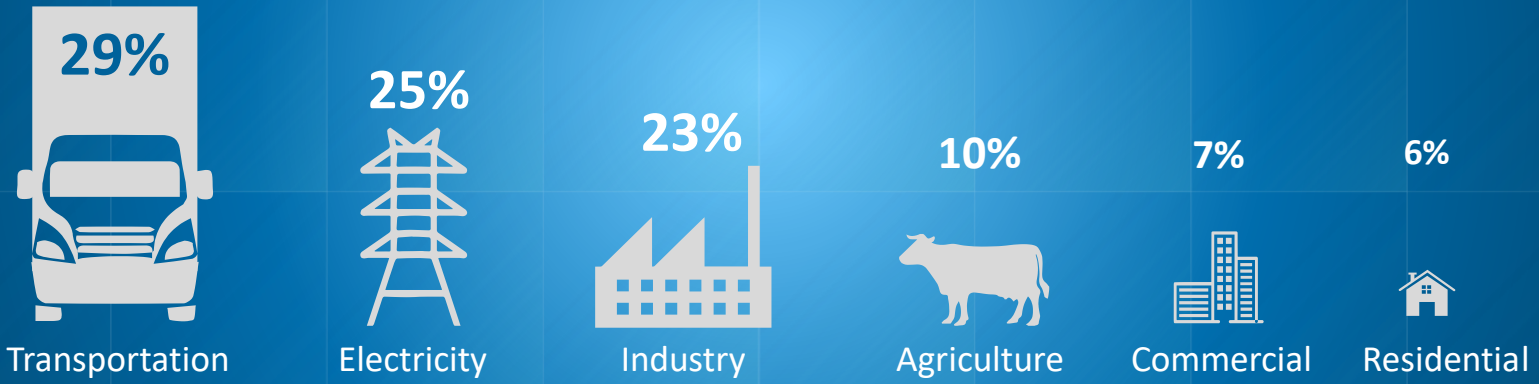
Augmented reality will require the near-instantaneous superposition of timely information, sourced from datacenters, onto a real scene displayed on a screen.

Use Cases for High-Speed, Low-Latency Networks



2019 U.S. Greenhouse Gas Emissions

Leveraging renewable sources of energy to power our zero-emission cars, our factories, and our lives has the potential to significantly reduce U.S. greenhouse gas emissions.

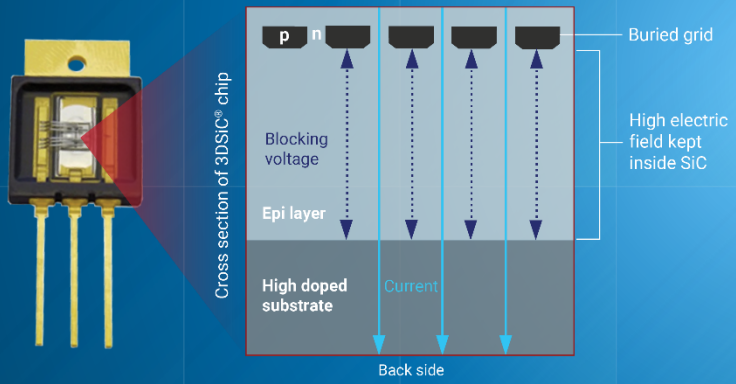


Total U.S. Greenhouse Gas Emissions by Economic Sector in 2019

U.S. Environmental Protection Agency – April 2021

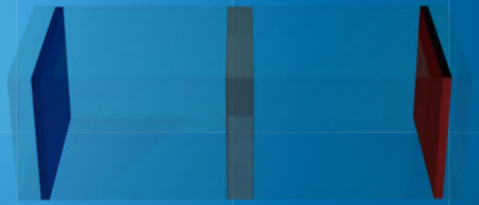
Enabling an Electric Future

3DSiC®



High-Voltage Power Electronics

SeS-C



Selenium-Sulfur-Carbon Cathodes for Batteries

MATERIALS THAT MATTER