

CMSE 2024 PROGRAM BOOK



27th Annual Components for Military & Space Electronics Conference & Exhibition

April 30th - May 2nd, 2024
Four Points Sheraton (LAX)
Los Angeles, CA

Organized by: TJ Green Associates, LLC

CMSE 2024

Message from the Chair

Message from the Chair....

On behalf of the CMSE Program Committee I would like to personally welcome everyone to this year's 27th annual CMSE Conference and Exhibition. One of the unique aspects of CMSE is our focus on both active and passive components. You will find experts in both fields coming together under one roof to converse and share solutions to common challenges of designing and building reliable hardware for both military and commercial space programs. This year we continue our focus on education with three cutting edge tutorials on Tuesday and a special Student-Industry networking reception in the evening.

On Wednesday we focus on next generation heterogeneous packaging along with what's new in the world of capacitors. Thursday we discuss how to digest these new technologies given the current Mil/Space qualification system as "Alternate Grade" parts take center stage in a special Panel discussion.

I'd like to personally thank our sponsors and exhibitors for supporting CMSE and everyone on our CMSE planning committee. So pay attention, take the time to listen, ask good questions and don't hesitate to respectfully challenge each other's ideas and technical opinions.

Welcome to CMSE 2024!



Thomas Green
CMSE Program Chair



PROGRAM COMMITTEE

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General Chair

Tom Terlizzi
Exhibits Chair

Trevor Devaney
Hi-Rel Laboratories

Jeffrey H. Sokol
JH Sokol & Associates

Ron Demcko
Kyocera-AVX Corp.

Jon Rhan
Vishay

Aaron DerMarderosian
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Bob Lowry
Electronic Materials Consultant

Larry Harzstark
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Precision Automation in Hermetic Package Sealing

Robotic Cover Sealer (RCS) - Patent Pending

- First fully automated hermetic cover seal processor
- Precision automation & processing enables new package configurations
 - Exact fit covers for smallest package dimensions
 - Photonic data communications in GEO, MEO and LEO satellites
- Dramatic productivity increase
 - < 2 minute change over between packages



2024 KEYNOTE SPEAKERS



Carl E. McCants, Ph. D.

Special Assistant to the Director, Defense Advanced Research Projects Agency (DARPA) for Microelectronics Policy

Dr. Carl E. McCants is a special assistant to the DARPA director, focusing on efforts to inform microelectronics policy and national strategies for microelectronics research and development.

Prior to his role at DARPA, he was the technical director of the Supply Chain and Cyber Directorate of the National Counterintelligence and Security Center (NCSC), in the Office of the Director of National Intelligence and a senior program manager at the Intelligence Advanced Research Projects Activity (IARPA).

From 2010 to 2012, he was a program manager in the Microsystems Technology Office at DARPA, focused on microelectronic integration and hardware assurance and reliability. From 2003 to 2009, he served as the chief technologist to the director of MTO, and special assistant to the DARPA deputy director.

From 1999 to 2003, McCants was a project manager at Agilent Technologies' Semiconductor Products Group, and from 1988 to 1999, he was a development engineer at Hewlett-Packard's Optical Communication Division.

McCants received his bachelor's degree from Duke University in 1981 and his master's and doctoral degrees from Stanford University in 1982 and 1989, respectively, all in electrical engineering. He is a senior member of the IEEE.

David L. Beck

Branch Chief for Capability Assessment and Principal for Space (Logistics) Industrial Base for the Space Systems Integration Office, Space Systems Command (SSC), Los Angeles Air Force Base, CA

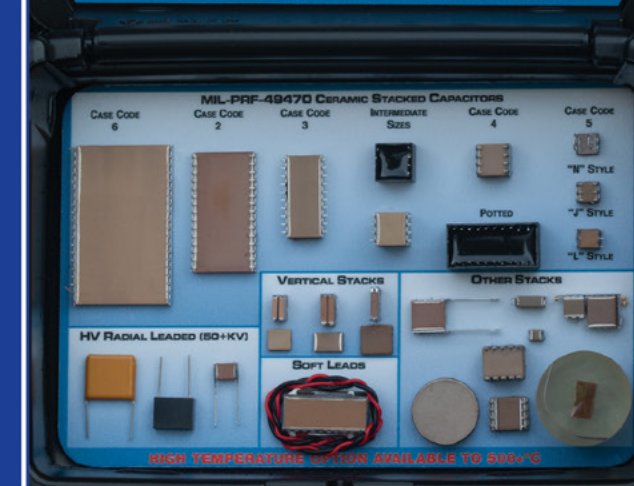
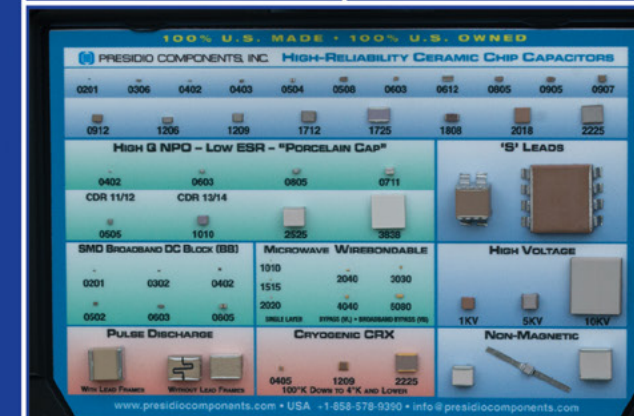
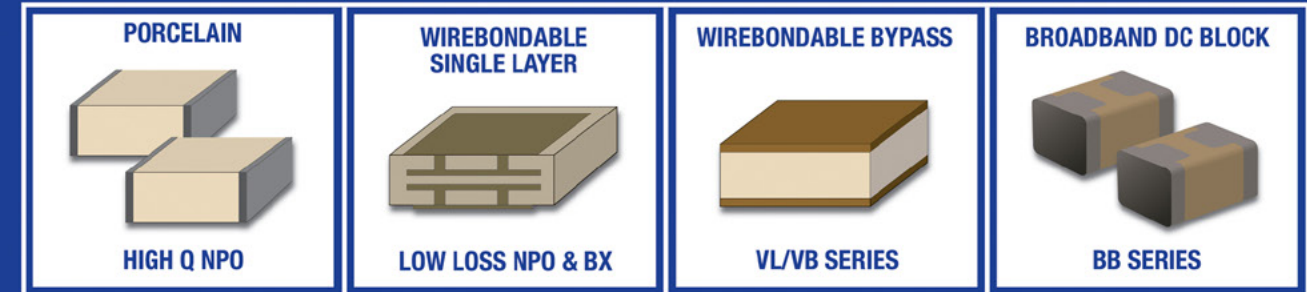


David L. Beck is the Branch Chief for Capability Assessment and the Principal for Space (Logistics) Industrial Base for the Space Systems Integration Office, Space Systems Command (SSC), Los Angeles Air Force Base, CA. Mr. Beck is responsible for assessment of (systems, software), industrial base support and sustainment, cybersecurity jointly with SSC/CIO and Space Systems integration Office, and working with government agencies, industry and foreign partners within the space community on future innovation and technology solutions in the space architecture.

Prior to this position Mr. Beck was the Assistant Program Manager (APM) for PMS 415 Undersea Warfare Systems in the Research and Development Branch PMS415D at Naval Sea Systems Command (NAVSEA) Headquarters in Washington DC. Mr. Beck duties included PM for SLUAS (Submarine Launched Unmanned Aerial System) program which are used on 688i and Virginia Class Submarines. Duties included (Collateral Duty): Cybersecurity Liaison for PMS415, Platform Installations Manager, Supply Chain Manager. Mr. Beck's duties included working with Strategic Programs office as well as other entities withing DoD on capabilities for the warfighter. Mr. Beck joined SSC in 2023 and participates in encouraging and innovating college and high school students via serving on several organizations committees and boards that focus on the future of space technology and science.

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2024 TUTORIAL SCHEDULE

Tuesday, April 30

0700 - 0900 Registration and Student Breakfast		
TUTORIAL #1 LOCATION: Los Angeles Room		
0800 - 1600	Microelectronic Component Engineering for The 2020s	Instructors: Ron Demcko (<i>Kyocera/AVX</i>) Trevor Devaney (<i>Hi-Rel Laboratories</i>) Jon Rhan (<i>Vishay</i>) Thomas J Green (<i>TJ Green Associates</i>)
TUTORIAL #2 LOCATION: La Jolla Room		
0900 - 1615	Heterogeneous Integration Packaging Reliability Challenges and Roadmap	Instructor: Richard Rao, Ph.D. (<i>Marvell Technology</i>) Co-Chair IEEE HIR Reliability TWG
1200 - 1300 STUDENT BUFFET LUNCH (For those attending tutorial classes) LOCATION: Hollywood Room		
TUTORIAL #3 LOCATION: Salon C (California Room)		
1630 - 1900	Understanding the Military Standards and Update on JEDEC and New Spec Initiatives	Instructors: Lawrence Harzstark (<i>Aerospace Corp.</i>) Sultan Lilani (<i>Integra Technologies</i>) Shri Agarwal (<i>NASA Jet Propulsion Laboratory</i>) Rod De Leon (<i>Boeing Corporation</i>)

Student & Professional Networking Event

Location: La Jolla Room
Time: 1900-2000

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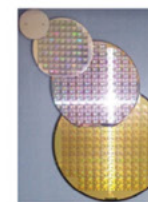
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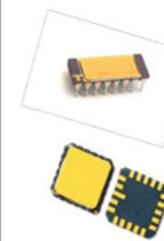
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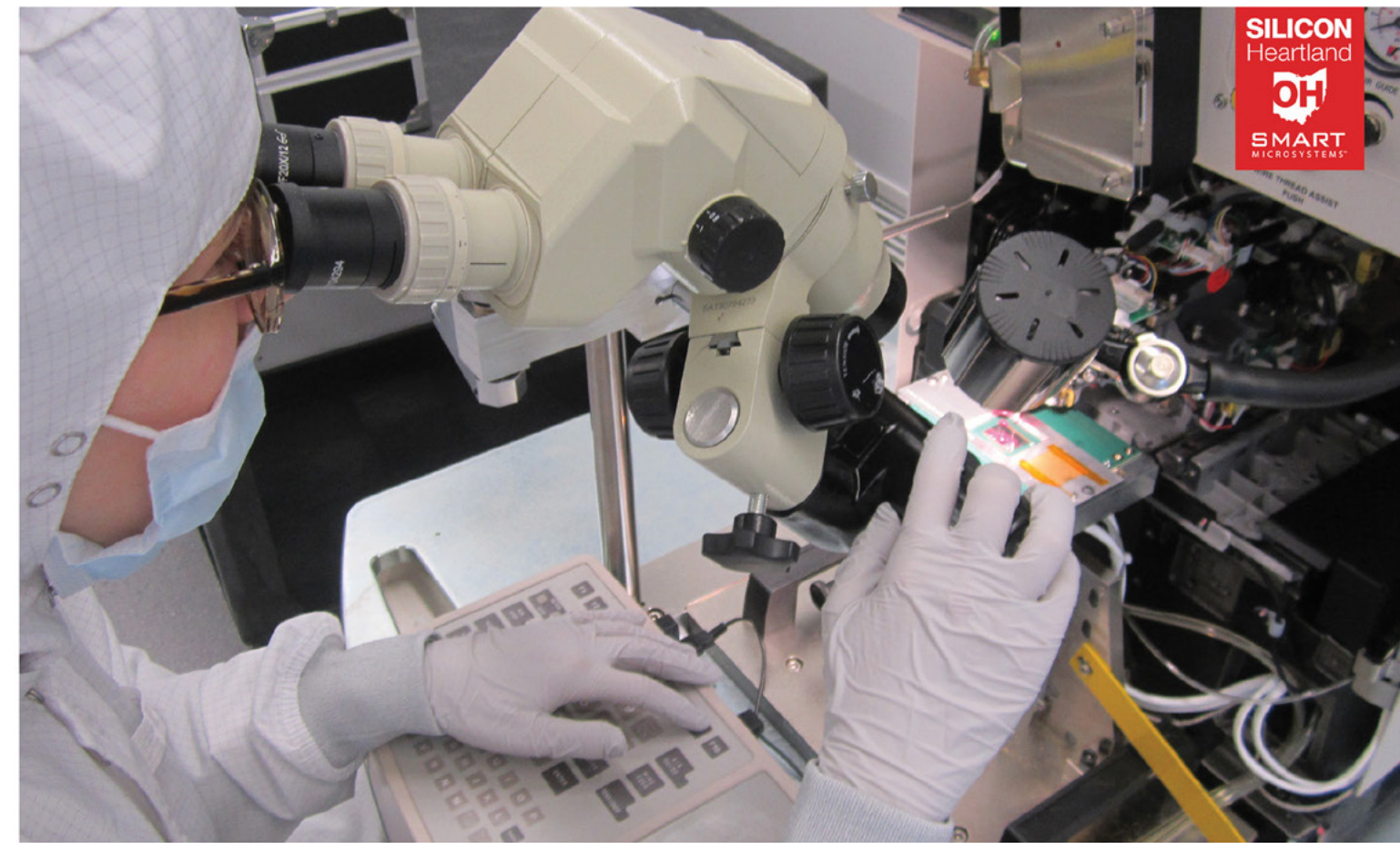
Turnkey hermetic Hi-Rel packaging for single or multiple chips using current or obsolete die.



2024 PRESENTATION SCHEDULE

Wednesday, May 1

0700	Coffee available 7AM in Annex across from Presentation Room	
0800-0815	Welcome Intro CMSE General Chair	Thomas J Green TJ Green Associates
Session #1A : Advanced Packaging Session Chair: Daniel West (Kyocera/AVX)		
0815-0840	Wafer Level Packaging and Reliability	Kaysar Rahim NGC
0840-0905	Introducing a Patented Ceramic Capacitor for Next Gen RF & Microwave	Scott Cooper Quantic Eulex
0905-0930	Reliability and Quality of Off-chip Interconnects in Advanced Packages in Perspective of High-Reliability Space Applications	Eric Suh NASA/JPL
0930-0955	IBM Advanced Packaging in the Northeast Corridor	Julian Warchall, Ph.D. IBM
0955-1020	COFFEE BREAK : SPONSORED BY Kyocera/AVX	
1020-1045	Reducing Board Surface Area and Improving RF Performance by Embedding Ultra-Thin Capacitors	Ryan Messina Kyocera/AVX
1045-1110	Heterogenous Integration in Complex Integrated Microelectronics Systems	Richard Otte Promex
1110-1200	KEYNOTE: Carl E. McCants, Ph. D. (DARPA) Future Microsystems for Extreme Environments	
1200-1355	LUNCH in the Exhibits Area SPONSORED BY Kyocera/AVX	
Session #1B : Thermal Considerations and Capacitor Technology Session Chair: Kaysar Rahim (NGC)		
1355-1420	Joint SAE/JEDEC Power GaN and SiC Working Group Presentation	Rod de Leon Boeing
1420-1440	Categorization, Developments, and Selection for Thermal Interface Materials	David Saums DS&A
1440-1505	Testing Methodologies and Test Systems for Thermal Interface Materials	David Saums DS&A
1505-1530	Hybrid Inspection and Assembly Process Related Challenges	Aaron Dermarderosian Collins Aerospace/RTX
1530-1550	COFFEE BREAK : SPONSORED BY Kyocera/AVX	
1550-1615	Time Dependent Capacitance Drift of X7R MLCCs Under Exposure	Brian Ward Vishay
1615-1640	Countering Threats from Transients in Magnetics	Victor Quinn Exxelia
1640-1705	The Benefits of High-Reliability in Polymer Tantalum Capacitors	Dr. James Turner Yageo/Kemet
1705-1730	High Energy, High Density Tantalum Capacitors for High Reliability Applications	Jon Rhan Vishay
1745-2000	WELCOME RECEPTION in the Exhibits Area	



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2024 PRESENTATION SCHEDULE

Thursday, May 2

0700	Coffee available 7AM in Annex across from Presentation Room	
0800-0835	KEYNOTE: David Beck (Space Force) The Critical Needs of a Resilient Industrial Base	
Session # 2A: COTS and Alternate Grade Parts Session Chair: Eric Suh (NASA/JPL)		
0835-0900	Active Packaging for Electronic Components and Assemblies	Anthony Cassanovas Honeywell
0900-0925	An Alternate COTS Approach for Space Missions	Susana Douglas NASA Goddard NEPP
0925-0950	COTS Power supply ESS Vibration failures	Aaron DerMarderosian Collins Aerospace/RTX
0950-1015	An update on non-hermetic Tantalum Polymer Capacitor Performance	Ron Demcko Kyocera/AVX
1015-1040	COFFEE BREAK : SPONSORED BY MicroCircuit Labs	
1040-1055	Lessons learned on buying commercial off the shelf products for up screening	Ben Mendoza Golden Altos
1055-1115	COTS Mission Success Improvement Workshop Results	Dr. Ryan Rairigh Lockheed
1115-1215	Alternate Grade Parts Panel Discussion Panelists: Pete Majewicz (NASA GSFC), Larry Harzstark (Aerospace Corp), Dr. Ryan Rairigh (Lockheed Martin Space), Mark Porter (NASA/JPL)	Moderator: Sultan Lilani Integra Technologies
1215-1330	LUNCH in the Exhibits Area	
1330-1355	Gap Analysis of COTS style EIA-364 standards to MIL-DTL-55302. What is needed and can be done for up screening Interconnects	John Riley Samtec
1335-1410	ASTM TML and TCVM methods and non-hermetics	Jayeshkumar Das, Ph.D. ORS
1410-1435	Precision Automation in Hermetic Package Sealing	Herman Itzkowitz, Rich Richardson MCL
Session #2B : Counterfeits, Trust and Rad Hard Issues Sesion Chair: Larry Harzstark (Aerospace Corp)		
1435-1500	The Numbers Crunch A Novel Approach to Transparency, Trust, and Assurance in Microelectronic Supply Chains	Richard Smith ERAI
1500-1525	Golden Samples for Counterfeit Mitigation	Lam Nguyen chipsID
1525-1550	Securing Microelectronic Supply Chains with Dendritic Identifiers	Michael N. Kozicki Densec & Arizona State University
1550-1555	COFFEE BREAK : SPONSORED BY MicroCircuit Labs	
1555-1620	VPT Component's Development of Radiation Hardened MOSFETs with LA Semiconductor	Joseph Benedetto VPT Components
1620-1645	QML-P: The latest standard for radiation-hardened, plastic space packaging	Javier Valle Texas Instruments
1645-1710	Microprocessor Reliability Enhancement Under Ionizing Radiation Using Performance Counters.	Antonio E. Teijeiro UTEP
1710-1730	John R. Devaney Award for Best Presentation	

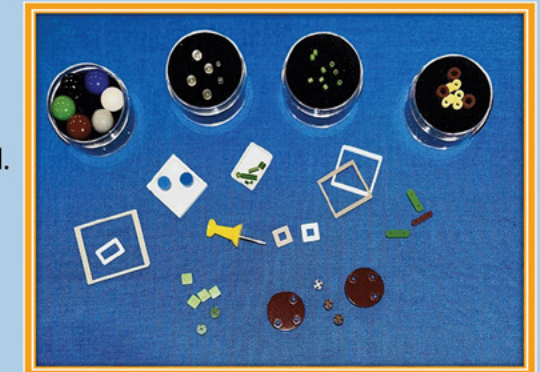


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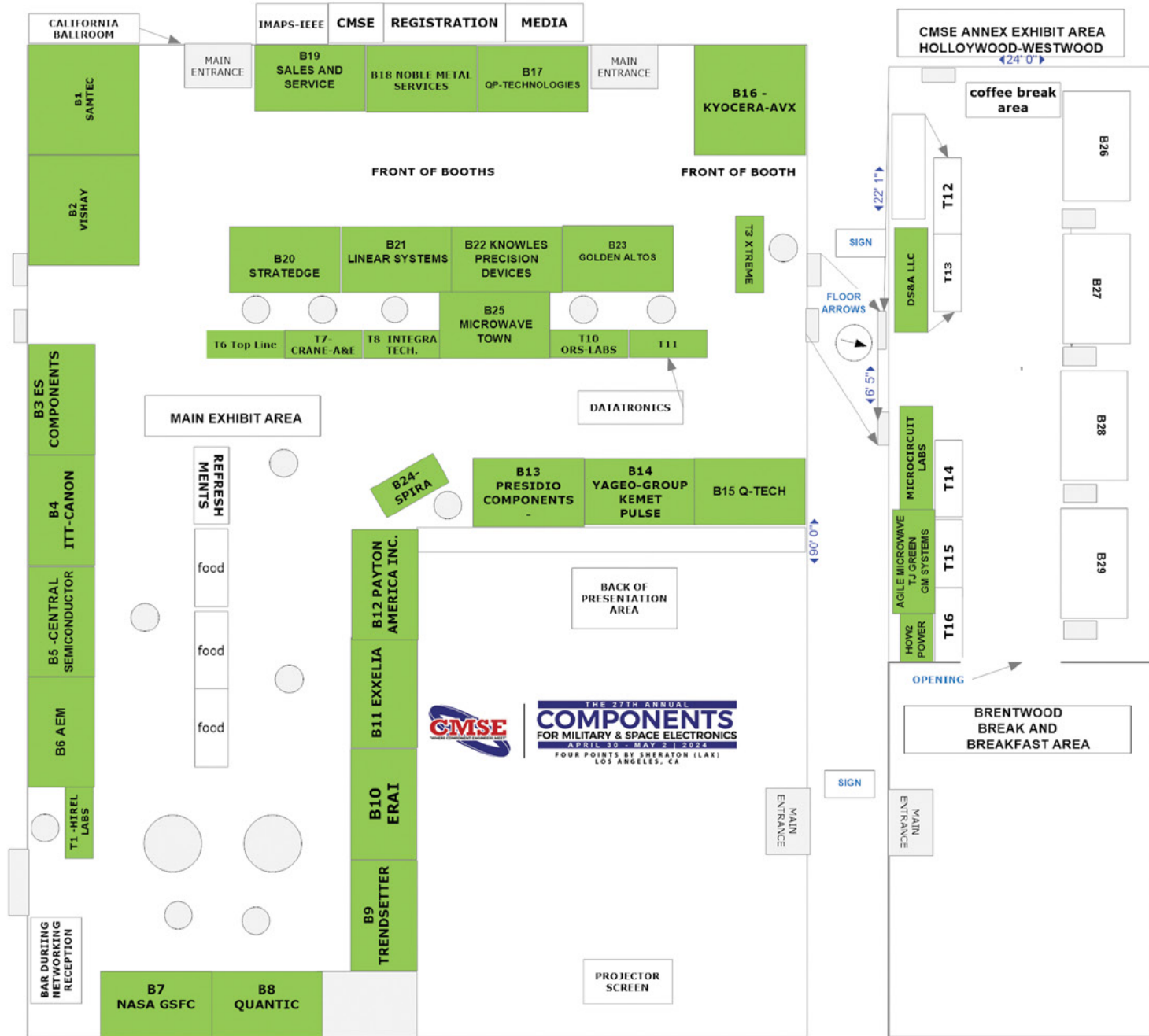
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EXHIBITORS



2024 EXHIBIT FLOOR LAYOUT



MAIN EXHIBIT AREA	
COMPANY	LOCATION
MAIN EXHIBIT AREA	
AEM	B6
Central Semiconductor	B5
Crane Aerospace & Electronics	T7
DATATRONICS	T11
ERA1, Inc.	B10
ES Components, Inc.	B3
EXXELIA	B11
Golden Altos Corp	B23
Hi-Rel Laboratories, Inc.	T1
Integra Technologies	T8
ITT Cannon	B4
Knowles Precision Devices	B22
KYOCERA AVX	B16
Linear Integrated Systems	B21
MICROWAVE TOWN	B25
NASA/GSFC	B7
Noble Metal Services	B18
Oneida Research Services, Inc.	T10
Payton America Inc	B12
Presidio Components	B13

Q-Tech Corporation	B15
QP Technologies	B17
Quantic Electronics	B8
Sales & Service, Inc.	B19
Samtec	B1
Spira Manufacturing	B24
StratEdge Corporation	B20
TOPLINE CORPORATION	T6
Trendsetter Electronics	B9
Vishay Intertechnology Inc.	B2
XTREME Semiconductor L.P.	T3
YAGEO Group/ KEMET	B14

ANNEX EXHIBIT AREA	LOCATION
HOW2 POWER	T16
AGILE MICROWAVE	T15
TJ GREEN LLC	T15
CIRTEK	T15
Micro Printing Systems	T15
MICROCOAT	T15
GMSYSTEMS	T15
MICROCIRCUIT LABS	T14
DS&A LLC	T13

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