





## SEMI-THERM 37 Exhibitor Directory


4	Boyd	<p>Boyd Corporation has over 90 years of customer-focused performance success and is a global leader in advanced sealing, thermal management and protection solutions. Aavid, Thermal Division of Boyd Corporation has a long history of developing, designing, testing, optimizing, and fabricating reliable high-performance cooling systems across all industries. By choosing, integrating, or developing the right technology, Boyd delivers solutions that can increase power, improve functionality and reliability, and reduce the cost and size of our customers' applications.</p>	The logo for Boyd Corporation consists of the word "BOYD" in a large, bold, dark blue sans-serif font, with the word "CORPORATION" in a smaller, all-caps, dark blue sans-serif font centered below it.
4	Infratec	<p>The Dresden-based company InfraTec GmbH Infrarotsensorik und Messtechnik has been a specialist for products and services in the field of infrared technology for 30 years. Now about 230 staff are employed. In the business division of sensor systems, custom-made components are produced on more than 1.500 m<sup>2</sup> of clean room space – especially pyroelectrical infrared detectors – for clients worldwide. With its business division of infrared measurement InfraTec ranks among the large suppliers of thermography and non-military thermal imaging. InfraTec has been supplying thermal imaging technology like its high-end camera series ImageIR® to demanding customers. Specific solutions tailored to electronic and microelectronic testing have been developed which today suit the needs of customers in the value chain of LED development and manufacturing.</p>	The logo features a large red "30" on the left. To its right, the years "1991" and "2021" are stacked vertically in a small font. Further right, the word "INFRA" is in red and "TEC." is in black, all in a bold, sans-serif font.

<p>4 Siemens</p>	<p>Siemens PLM Simcenter portfolio includes a range of simulation software and test equipment solutions to aid development of a virtual digital twin of a product for improved design and lifecycle management. This portfolio now includes 30+ year industry leading Simcenter Flotherm electronics cooling software product family and Simcenter T3STER thermal test hardware solutions from Mentor, A Siemens Business.</p> <p>Find out about the latest in enhancements to Simcenter Flotherm and Simcenter Flotherm XT at SEMI-THERM, and seek more information on other simulation tools in the portfolio incl. multi-physics simulation software (Simcenter STAR-CCM+), CFD for designers (Simcenter FLOEFD).</p> <p>In semiconductor thermal measurement, characterization and thermal reliability, find out the latest on Simcenter T3STER test solution family. This includes latest developments in thermal measurement to support automatic thermal simulation model calibration and LED multi-domain models, TIM material testing, and power semiconductor thermal reliability testing (SIMCENTER POWERTESTER range).</p>	
<p>3 AR Brown</p>	<p>ADVANTAGE OF CSC ALN POWDER AS THERMAL CONDUCTIVITY FILLER (D50=5um/10um/20um/30um/50um/70um/80um/100um/120um)  We are worldwide authorized distributor of AlN powder as thermal conductivity filler manufactured by CSC (Japan).  CSC AlN powder materializes High thermal conductivity with low viscosity and reasonable cost made in Japan.</p> <ul style="list-style-type: none"> <li>▪ CSC AlN powder is very new irregular AlN.</li> <li>▪ There is no trade-off problem between thermal conductivity and viscosity mixing resin.</li> <li>▪ Price is cheaper than competitors.</li> </ul> <p>Considering from filling rate and viscosity, currently, customers are using spherical AlN. But there are essential problems of spherical AlN as below;  1)High price due to production process.  2)Lower thermal conductivity than customer expected due to structure of particle came from production process.</p> <p>But customer has no choice except for using spherical AlN because current other AlN has lower filling rate and higher viscosity mixing resin than those of spherical type even if thermal conductivity is better. So, customer scratch the head how to solve this trade-off problem.</p> <p>CSC overcome this trade-off problem. CSC AlN is irregular type, but materialize higher thermal conductivity and higher filling rate and lower viscosity with reasonable cost.</p>	<div data-bbox="1266 995 2011 1161" style="border: 1px solid black; padding: 10px;"> <p><b>Aluminum Nitride powder</b></p> <p><i>High thermal conductivity, high filling rate, low viscosity</i></p> <p> <b>AR BROWN CO. LTD.</b></p> </div>

3	<p>Future Facilities</p> <p>We set Future Facilities up to deliver the power of engineering simulation into the hands of an emerging data center industry. We created a tool optimized for data centers, designed to be used by the DC professional, and made it powerful, intelligent, automated and connected. Five years later, we tuned our technology to deliver the same benefits to the thermal management of electronics and provide an integrated toolset for these two converging industries. We develop engineering simulation software that allows our customers to quantify and qualify business decisions balancing risk against cost. Our offering covers the full spectrum starting from electronics design to data center design and operations. Our software provides a safe, offline environment in which to create virtual prototypes, troubleshoot existing designs and run what-if scenarios for future configurations.</p>	
3	<p>MSC SW</p> <p>MSC Software develops simulation software technology that enables engineers to validate and optimize their designs using virtual prototypes. Our CFD solutions are characterized by their user-friendly interfaces, high accuracy, and high efficiency. Customers in almost every part of manufacturing use our software to complement, and in some cases even replace the physical prototype “build and test” process that has traditionally been used in product design.</p>	
2	<p>Indium</p> <p>Indium Corporation is a premier materials manufacturer and supplier to the global electronics, semiconductor, thin-film, and thermal management markets. Products include solders and fluxes; brazes; thermal interface materials; sputtering targets; indium, gallium, germanium, and tin metals and inorganic compounds; and NanoFoil®. Founded in 1934, Indium has global technical support and factories located in China, Malaysia, Singapore, South Korea, the United Kingdom, and the USA.</p> <p>For more information about Indium Corporation, visit <a href="http://www.indium.com">www.indium.com</a> or email <a href="mailto:abrown@indium.com">abrown@indium.com</a>. You can also follow our experts, From One Engineer To Another® (#FOETA), at <a href="http://www.facebook.com/indium">www.facebook.com/indium</a> or @IndiumCorp.</p>	

2	Element 6	<p>Element Six (E6), part of the De Beers Group, is a world leader in the development and production of synthetic diamond solutions.</p> <p>Since 1959, E6's focus has been on engineering the diamond synthesis process to unlock innovative applications, including thermal management, optics, wastewater management and sensing.</p> <p>Our patented technology places us at the forefront of synthetic diamond innovation, enabling us to deliver competitive advantage to our customers through diamond-enabled solutions.</p> <p>We don't work for you, we work with you.</p>	 <p><b>elementSIX</b>™ DE BEERS GROUP</p>
2	Nanoramics	<p>Nanoramic Thermexit™ is a line of high-end thermal interface gap filler pads. Nanoramic's® gap fillers are a non-reactive, non-silicon, no cure system featuring high thermal conductivity and high thermal stability. Nanoramic® produces 2 novel product lines, a High Performance TIM Gap Filler and an Electrically Insulating TIM Gap Filler.</p>	 <p><b>Thermexit</b>™ A Nanoramic® Labs Technology</p>
2	Novark	<p>Novark Technologies, Inc. was founded in 2004 in Shenzhen, China, and quickly became a recognized name in the thermal management industry. Novark first established itself as a qualified supplier of heat pipes to support the development of tier-one high-tech companies such as Microsoft, AMD, Sony, and Toshiba, then branched out into heat sinks and cold plates. Novark became known for their cost-effective and high-quality manufacturing processes and their agility in response to customer needs.</p> <p>Novark's team of highly skilled experts and nearly 1000 employees focus on the custom design, development, and manufacturing of Novark's three product families. Novark supports thermal solutions in a wide variety of markets, including PC, telecom, industrial power, servers, data centers, transportation, LED Lighting, and many more. Novark also supports scientific research at many universities, and frequently supplies materials and prototypes to researchers.</p>	 <p><b>NOVARK</b>™ TECHNOLOGIES</p>
2	JetCool	<p>JETCOOL's microconvective cooling technology empowers high performance data centers to compute faster and more sustainably. Delivering the most effective cooling for today's CPUs, GPUs, and ASICs, engineers use JETCOOL to increase compute speed by 40% and achieve up to 8% energy savings by maximizing efficiency with coolant temperatures up to 55°C. JETCOOL's next-generation cooling solutions are a perfect match for data center processors pushing the limits of performance.</p>	 <p><b>jetcool</b></p>

2	CPC	<p>CPC is an undisputed leader in liquid cooling connections offering couplings designed to protect valuable electronics with unmatched design, quality, and reliability. They withstand long periods of connection yet disconnect reliably without drips. For more information, visit <a href="http://www.cpcworldwide.com/liquidcooling">www.cpcworldwide.com/liquidcooling</a></p>	
2	Cadence	<p>Cadence has expanded its presence in the system analysis and design market with the introduction of the Celsius Thermal Solver, the industry's first complete electrical-thermal co-simulation solution for the full hierarchy of electronic systems from ICs to physical enclosures. The Celsius Thermal Solver seamlessly integrates with Cadence IC, package, and PCB implementation platforms, enabling new system analysis and design insights and empowering design teams to detect and mitigate thermal issues early in the design process. Learn more at <a href="http://www.cadence.com">www.cadence.com</a>.</p>	
1	Blueshift Materials, Inc.	<p>Blueshift Materials, Inc. developed and manufactures in a roll-to-roll format a 125-micron high performance polymer aerogel film called AeroZero®. AeroZero was developed for thermal management applications that require an extremely thin and lightweight material with a low rate of heat transfer, that can also withstand extreme environmental conditions. AeroZero is 85% air, and the company has branded it "Structured Air." The film thus has low density, high porosity, and extremely low dielectric properties and thermal conductivity. AeroZero retains most of the key properties of a polyimide: wide operating temperature range (-200 C to +260 C), inherent flame retardancy, etc. <a href="http://www.blueshiftmaterials.com">www.blueshiftmaterials.com</a></p>	
1	Celsia	<p>Celsia specializes in custom heat sink design and manufacturing using liquid two-phase devices: heat pipes and vapor chambers. Through its US headquarters and Taiwan design &amp; production facility, the company's goal is to deliver fast, affordable, and reliable thermal solutions for the most demanding applications including high density electronics, performance CPU / GPU, amplifiers, HBLEDs, ASICs, and rugged systems. In recent years, Celsia has shipped over 2.5 million thermal assemblies to a global custom base in the telecommunications, computer, test equipment, defense, laser, and medical markets.</p>	

1	Klinger IGI	<p>Klinger IGI is an AS9100 / ISO 9001-2015 / ITAR registered manufacturer, specializing in precision cut thermal interface and gap pads, EMI/RFI shields, acoustic and vibration dampers, washers and spacers, filters, and custom gaskets and seals for OEMs and Tier 1s in the highly regulated aerospace, electronics, medical, and energy industries. Klinger IGI delivers total solutions with a large selection of material options, proven manufacturing technologies and simple integration of manufactured production parts with tight tolerances. We offer expertise in selecting the most cost-effective material solutions while supporting the design of your parts with effective manufacturing and assembly operations.</p>	
1	Thermal Engineering Associates	<p>TEA is a company founded by Bernie Siegal, a 35+-year veteran and recognized technical leader in the semiconductor thermal field. The company's mission is to provide a central source for the products and services necessary for proper semiconductor thermal measurement and modeling and solutions to attendant thermal management problems. Through its own products and services, augmented by an extensive network of technical experts around the world, TEA can assist customers in finding solutions. The Tech Briefs and Hot Links pages provide useful information to those interested in semiconductor and electronics thermal issues. We welcome the opportunity to discuss your thermally-related measurement, modeling and/or management requirements.</p>	