

University of Central Florida Partners with POWERLASE For Laser-Produced Plasma Extreme Ultraviolet (EUV) Sources Breakthrough

- *Industrial Collaboration Set To Produce Next Generation of Quality Laser-Produced Plasma*
- *The Partnership Will Create a Combination of High EUV Conversion Efficiency Whilst Eliminating of Neutral and Charged Particles. Clean and Cost Effective Laser Produced Plasma.*

Crawley, England – 11th October, 2006 – POWERLASE Limited, manufacturers of the world's most powerful nanosecond Q-switched, diode-pumped solid state (DPSS) lasers, announces a partnership with the University of Central Florida (UCF) in the field of Extreme Ultraviolet Lithography to further the development of high-power laser produced plasma EUV source.

EUV lithography is now the most promising technology for producing semiconductors of 32nmhp and below. The EUV source that both POWERLASE and UCF are working on is based on the laser-produced plasma approach (LPP). Through this relationship, POWERLASE and UCF will demonstrate, to the EUV community, the potential of this collaborative work with regard to the production of high conversion efficiency, cost effective laser-produced plasma EUV source.

POWERLASE has already provided UCF with its kilo-class Starlase laser to irradiate the UCF's tin-doped micro-droplet laser plasma source. This source has demonstrated the highest conversion efficiency with a minimum amount of contamination. The combination of a high EUV conversion efficiency and the elimination of neutral and charged particles is the aim of this collaborative work.

Dr Samir Ellwi, POWERLASE Vice President of Strategic Innovations comments: "We are very excited to be able to collaborate with world-leading academic experts in the field of Extreme Ultraviolet sources. Our high power, high-repetition, short pulse Starlase laser is an ideal driver for the laser-produced plasma EUV source and we're proving that a scalable laser-produced plasma source is the way forward to satisfy the stepper manufacturer requirements both now and in the future."

The POWERLASE lasers will provide the EUV source suppliers an excellent solution to satisfy EUV lithography stepper manufacturers' requirements. These steppers will be used in semiconductor chip fabrication. Currently two technologies are being considered as EUV sources – laser-produced plasmas and discharge-produced plasmas. POWERLASE Starlase lasers have been selected as the ideal solution to produce the high power, high-repetition lasers necessary to produce best-in-class results.

The inventor of the micro-droplet laser-plasma EUV source, Professor Martin Richardson, Trustee Chair and Northrop-Grumman Professor of X-ray Photonics at UCF, says, "POWERLASE's investment in this collaboration demonstrates the potential advantages of solid-state laser driven laser plasma sources. In the short time of this collaboration we have already demonstrated EUV powers approaching 10 Watts, and expect further significant gains in the near future. This advance provides a viable technical pathway towards satisfying the power and cost requirements for EUV lithography."

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About POWERLASE

POWERLASE Limited is an innovative, independent, high power Laser Company, focused on Diode Pumped Solid State lasers developed for industrial applications primarily for use in the materials processing and microelectronics markets for flat panel displays, microelectronics, automotive and aerospace sectors.

POWERLASE is supported by venture capital from MTI Partners, Deutsche Venture Capital, Esprit Capital Partners LLP (formerly Cazenove Private Equity), Alice Ventures and FNI Venture Capital.

POWERLASE Limited is ranked as the fifth fastest growing venture capital-backed company in the UK in the Daily Telegraph 2006 Business Growth Rankings.

About the University of Central Florida

Professor Richardson's EUV Program is part of the Laser Plasma Laboratory he directs within the College of Optics & Photonics, CREOL & FPCE at the University of Central Florida in Orlando. This Laboratory (www.lpl.creol.ucf.edu) is most well known for developments in lasers and laser plasma science and technologies in several disciplines. It has been developing sources for advanced lithography and x-ray microscopy since its inception in 1990. The College of Optics & Photonics the first college of optics, lasers and photonics, grew from the creation of CREOL at UCF in the late 1980's. It now comprises some 40 faculty, 160 graduate students (250 employees overall) and



is one of the largest academic optics institutions in the world. UCF is a rapidly advancing metropolitan university in the US with a student population approaching 50,000. Three of its five primary goals are to achieve international prominence in graduate study and research, to provide international focus to curricula and research programs and to become America's leading partnership university.

For further information, please contact:

Blaise Hammond, Katie Judge or Simon Hilliard at Fuse PR

Tel: +44 (0) 208 752 3203

blaise@fusepr.com / katiej@fusepr.com / simon@fusepr.com