The graphics processing unit (GPU), as an emerging high-performance computing platform, has been introduced to radiotherapy. It is particularly attractive due to its high computational power, small size, and low cost for facility deployment and maintenance. Over the past few years, GPU-based high-performance computing in radiotherapy has experienced rapid developments. A tremendous amount of study has been conducted, in which large acceleration factors compared with the conventional CPU platform have been observed. Please note that terms and conditions apply. GPU-based high-performance computing for radiation therapy. View the table of contents for this issue, or go to the journal homepage for more. 2014 Phys. hgpu.org Â– Programming Â– CUDA Â– GPU-based high-performance computing for radiation therapy. GPU-based high-performance computing for radiation therapy. Xun Jia, Peter Ziegenhein, Steve B Jiang. Â Recent developments in radiotherapy demand high computation powers to solve challenging problems in a timely fashion in a clinical environment. The graphics processing unit (GPU), as an emerging high-performance computing platform, has been introduced to radiotherapy. It is particularly attractive due to its high computational power, small size, and low cost for facility deployment and maintenance. Over the past few years, GPU-based high-performance computing in radiotherapy has experienced rapid developments. Exchanger Manufacturers' Association ALPHAGRAP: Alpha Graphics ALSC: American Lumber Standards Committee AMACOM: AMACOM Books, A division of the American Management Assn. Â Graphics Processing Unit-Based High Performance Computing in Radiation Therapy, 2015 Edition, October 7, 2015 - Graphics Processing Unit-Based High Performance Computing in Radiation Therapy. There is no abstract currently available for this document. Read moreÂ– Intensity-modulated radiation therapy requires the precise selection and delineation of the various anatomic volumes based on 3D volume imaging. Moreover, treatment-planning systems must now integrate various imaging modalities, including functional imaging for planning, not only before the start of treatment, but also during treatment to allow the adaptation of the absorbed-dose distribution to the desired and possibly changing target volumes. Â Intensity-modulated radiation therapy can lead to improved conformity of the high-dose region to the tumor. Usually, but not always, IMRT requires greater time and resource commitment than conventional radiotherapy.