

成像技术与图像处理

可扩展式自适应光学系统波前处理器的硬件设计

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摘要：为满足大型地基高分辨率成像望远镜对自适应光学系统波前处理的需求,需设计千单元的自适应波前处理系统。为此提出了一式的自适应光学系统波前处理器。系统由波前处理主板和波前处理子板组成,每块波前处理主板可扩展10块波前处理子板。整个系统000帧/s的实时波前图像的采集、子孔径斜率的计算、波前拟合和1 200路的控制促动量输出的任务。详细给出了整个系统的硬件设计实施过程和实验结果。

关键词：自适应光学系统 波前处理器 可扩展

Hardware Design for Extendible Adaptive Optics System Wave-Front Processor

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Abstract: For the need of lager ground-based high resolution EO imaging telescope adaptive optics wave-front processing, thousands of units AO wave-front processing system is required to design. In this paper, an exten adaptive optics wave-front processor has been presented. This system uses wave-front processing host board wave-front processing sub board, and can realize expansion according to the scale of adaptive system. Each v front processing sub board can promote the output of 120 roads, with the maximum expansion capacity of 10, system can reach 2 000 frames/s sampling and processing frequency and promote the momentum of the output 200 roads. This article gives a detailed design, implementation and test results.

Keywords: adaptive optics wave-front processor extend

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