

# An Associative Memory Chip for the Trigger System of the ATLAS Experiment

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The AM06 is the 6th version of a large Associative Memory chip designed in 65 nm CMOS technology. The AM06 operates as a highly parallel ASIC processor for pattern recognition in ATLAS experiment at CERN. It is the core of the Fast TracKer electronic system which is tailored for online track finding in trigger system of ATLAS experiment at the LHC. The Fast TracKer system is able to process events up to 100 MHz in real time.

AM06 is a complex chip, designed combining full-custom memory arrays, standard logic cells and IP blocks. It contains memory banks that store data organized in 18 bit words; a group of 8 words is called a "pattern". AM06 silicon area is 168 mm<sup>2</sup> and contains 421 millions transistors and stores 217 patterns.

Moreover AM is suitable also for interdisciplinary applications (i.e., general purpose image filtering and analysis). In future we plan to design a more powerful and flexible chip at 28 nm CMOS.

In this poster the architecture of design and the characterization results of AM06 will be presented.

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