CONTROL AND DATA ACQUISITION SYSTEM OF THE SWISS LIGHT SOURCE

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The Swiss Light Source (SLS) is a third generation synchrotron light source under construction at the Paul Scherrer Institut (PSI) in Villigen, Switzerland. The high performance and aggressive time schedule of the machine and experiments put some particularly high demands on the accelerator and beam line control systems. An integrated system based on the Epics toolkit and Cdev has been built to provide machine and beam-line control as well as experimental data-acquisition. The control and data acquisition system consist of 20,000 signals, with requirements spanning from sub milli-second response times to multi-mega bytes per second throughput. Sub-systems including the complete Linac and the RF systems are being delivered as turnkey units. The contractor for these systems will deliver a working control system, built using the standard SLS control system hardware and software components. This will simplify integration, maintenance and operation of these sub-systems. To reduce development time, tools have been produced to allow system configuration and state machines to be built graphically. Extensive use is made of Personal Computers, as well as VME systems and IO cards making use of new features such as ‘hot-swap’ technology.