

DEVICE NET IMPLEMENTATION UNDER LINUX FOR USE IN CONTROL SYSTEM OF A PARTICLE ACCELERATOR.

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A control system (cs) of a "industrial type" for new electron linac have been designed. CAN-bus was selected as basic fieldbus as for front-end level of cs as for operator's console level. To ensure ability to use components from other developers, Device Net high level protocol for CAN has been selected. Linux has been chosen as a basic operational system to develop Device Net protocol stack. Device Net protocol stack, have been developed, contains both Slave's and Master's functionality. The following features are supported today: duplicate MAC ID check, Predefined Master/Slave Connection Set, Unconnected Message Manager for dynamic management of connections. The Device Net software package consists of three components. The first component is a configurable, scaleable and portable kernel which contains protocol algorithms and which was written in pure ANSI C. The second component is a system driver which provides system specific functions to the kernel. The third component is a CAN driver which provides interface between kernel and particular CAN controller. Up today our Device Net system has been tested on an Intel-Linux machines equipped with ISA - CAN interface card. Various utilities have been developed to make management of Device Net network easy.