



Fermi National Accelerator Laboratory

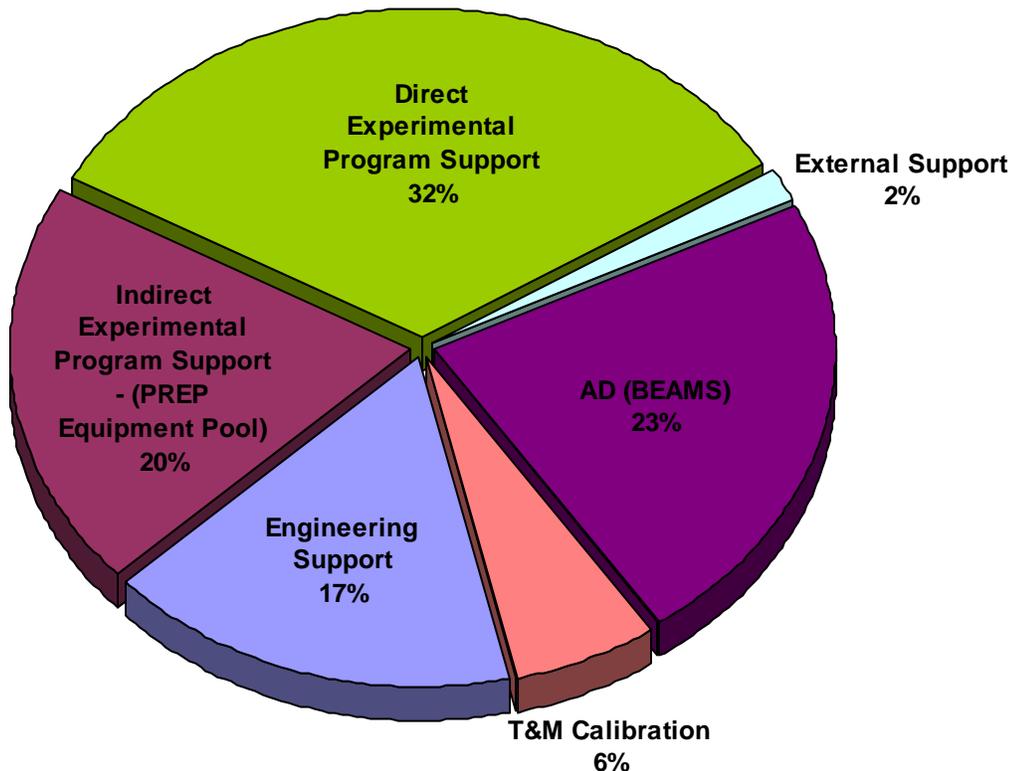
Computing Division/Electronics Support

March 1, 2003 – Tim Kasza

During the peak of the Fixed Target experimental programs of the Nineties, ESS service commitments were tightly focused on the repair of NIM, CAMAC and Fastbus equipment. Over the last six years, Electronics Support has transformed and developed new core services while maintaining its historical repair services. In 2003, the following metrics show, ESS has aligned its resources to provide strategic electronic repair and engineering support services in support of the running experimental programs. Other contributions to the lab's experimental programs included the allocating of resources across Divisional boundaries to assist Accelerator Division (Beams) on the Recycler BPM (Beam Position Monitor) upgrade project.

ESS - Support Efforts

January 1, 2003 - February 4, 2004

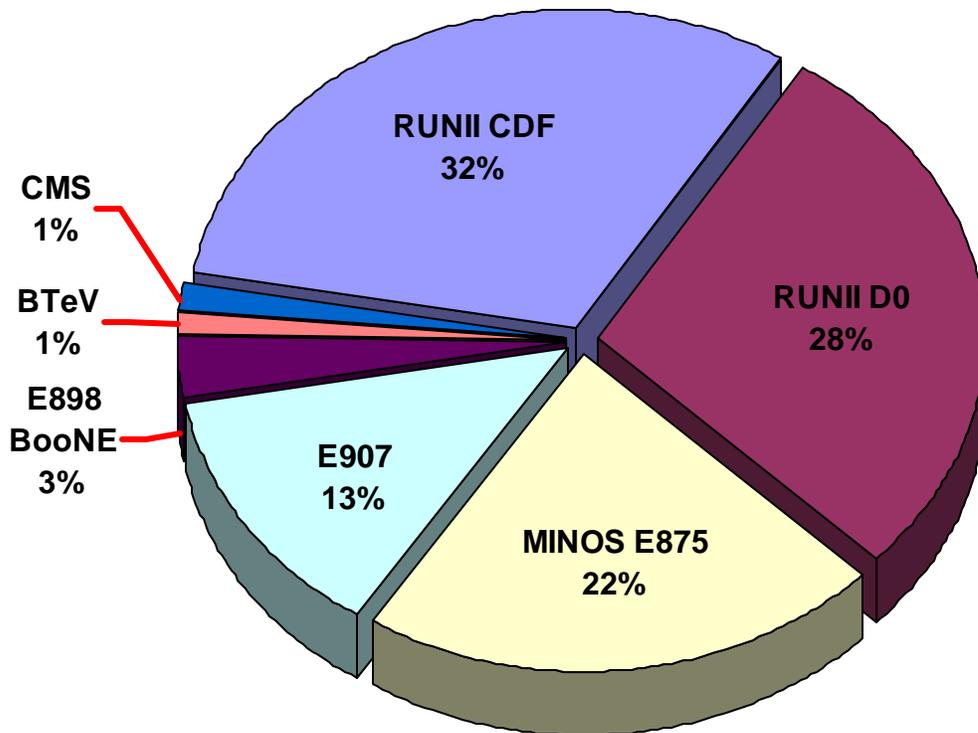


Note: 14.3% = 1 FTE

Using sound management techniques, Electronics Support has worked smart by prioritizing its indirect experimental support (PREP equipment pool) repair initiatives. In 2003, this provided ESS the flexibility to redirect some resources toward the lab's running experiments and vital Lab wide projects (Recycler BPM upgrade project). Major contributions to the Recycler BPM upgrade project included modifying and calibrating 275 BPM pre-amp modules. The impact of this effort was significant; meeting crucial hardware installation timelines required several technicians working overtime over a four-month period in conjunction with additional help from ESE (Electronic Systems Engineering).

In 2003, ESS directed 1/2 of its resources toward some of the Laboratory's key experimental programs (Direct Experimental Program Support & Engineering Support). This includes repair support on electronics that is considerably more complex than that used during the Fixed Target Program.

Direct Experimental Program Support



Note: 32% Direct Experimental Support Effort

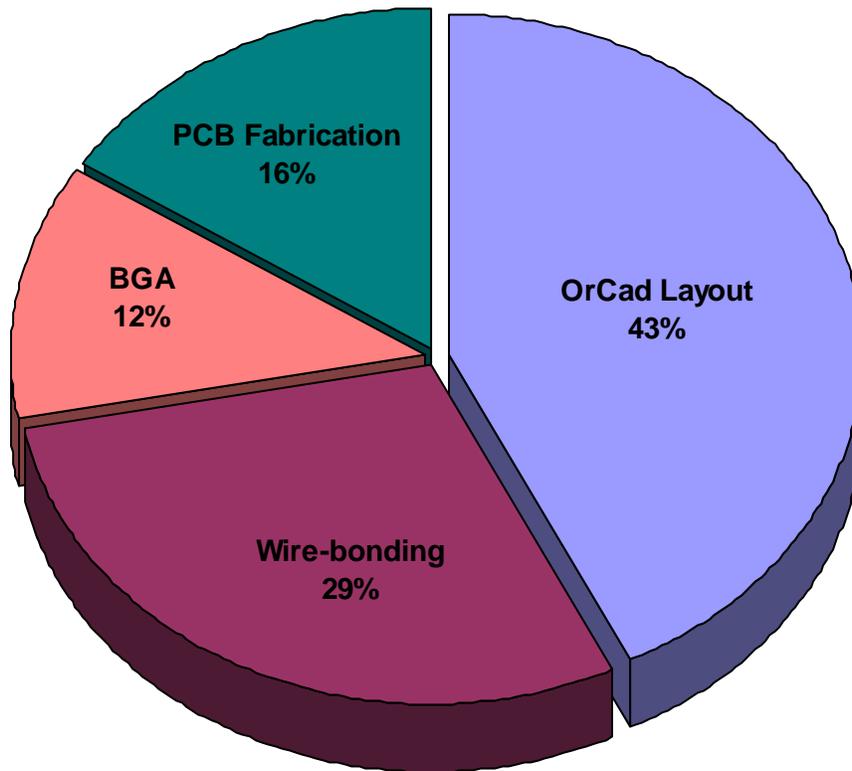
During the last six months, ESS has ramped up its repair support for MINOS. In addition to performance testing of VME crates and sophisticated power supplies used in the Far and Near Detectors, ESS is providing repair support for the Far Detector DAQ electronics (Sudan, MN).

Cross training has taken place on the CAEN HV systems used by RunII, including training at Italy and well as training provided at Fermilab by CAEN engineers. The D0 VME based HV system continues to be supported with some regular level of repairs.

E907 was somewhat of an aberration in 2003 with some 30 crates worth of CAMAC electronics supplied for use at Meson. A significant part of this effort was the testing of the LRS 4291 TDC modules as well as various other electronics.

Over the last six years, Electronics Support has developed new technical capabilities and modernized its resources. This includes new capabilities in OrCad Layout, Wire-bonding, BGA (Ball Grid Array) chip installation and removal, X-Ray inspection, MetCal automated calibration of Test & Measurement equipment, and LabVIEW graphical programming. The Engineering Support effort shown below is generally coordinated through ESE (Electronic Systems Engineering) Section on behalf of BTeV and RunII.

Engineering Support 60% BTeV, 40% RUN IIb



Note: 17% Engineering Support Effort

Over the last three years, virtually all diagnostics for traditional CAMAC modules were converted to LabVIEW. The effort came from a core team of ESS technicians working closely with several summer students. The diagnostics go beyond the previous level of testing and ensure consistency in the certification process.

The BGA rework station and X-Ray inspection system is the only station known to be on-site. Ad hoc requests to rework surface mount chips are not uncommon from RunII.

Indirect Experimental Support is primarily the maintenance of the PREP pool equipment and equipment provided to small approved efforts, test beams and approved loans. The list below shows some of the equipment pool's (PREP) customers since January 2003.

PREP Customers:

FL/TD

FL/PD

FL/LS/EDO

FL/LS

FL/ES

FL/CD/EAG

FL/CD

FL/AD

T933

T932

T930

NLC

LODEN

E901 Recycler Electron Cooling

E891 CDMS

Note: 20% Indirect Experimental Support Effort

All effort data was derived from the following sources: misjob, equipdb, weekly status reports & monthly effort reporting.