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I. Title Page.

U. S. DEPARTMENT OF THE INTERIOR

U. S. GEOLOGICAL SURVEY

DESCRIPTIONS OF SEISMIC ARRAY COMPONENTS:

PART 1. DIGGER, DIGIREC, AND MULTIPLEXER.

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II. Disclaimer.

III. Date of Latest Revision.

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IV. Text.

INTRODUCTION

In the summer of 1990, funding was available to design and implement two portable seismic arrays for the volcano program. The approach was based on Lee et al. (1989). Several contracts were awarded to commercial companies to design and implement various components needed to build the portable arrays. The purpose of this report to present source code written for the first three components -- DIGGER, DIGIREC, and MULTIPLEXER -- as submitted by the contractors, on a PC/DOS/MS DOS diskette. Documentation corresponding to these source code is presented in U.S. Geological Survey Open-File Report 92-xxx-A.

DIGGER

DIGGER is a remote field digitizer by Cutler Digital Design of Mountain View, California. The original design and specifications were due to Gray Jensen. Source code for the DIGGER is reproduced in its entirety in the sub-directory called "DIGGER".

DIGIREC

DIGIREC is an electronic circuit board by Cutler Digital Design of Mountain View, California to receive serial data from up to 16 different field digitizer. The original specifications were due to Gray Jensen and Willie Lee. Source code for the DIGIREC and for the modified modules of XDETECT (Tottingham and Lee, 1989), as submitted by Cutler Digital Design, is reproduced in its entirety in the sub-directory called "DIGIREC" and "XDETECTD".

MULTIPLEXER

MULTIPLEXER is an electronic circuit board by Dean Tottingham of Palo Alto, California to multiplex 64 channels of analog seismic signals for input to a 16-bit A/D board made by Data Translation, Inc. of Marlboro, Massachusetts. The design used an approach originally developed by Ellis (1989). The files for layout and artwork for the MULTIPLEXER as submitted by Dean Tottingham is reproduced in its entirety in the sub-directory called "MULTIPLX".

REFERENCES

Ellis, J. O. (1989). Expanding the input multiplexer for the Data Translation, Inc. Model DT2821 analog-to-digital converter, U.S. Geol. Surv. Open-File Report 89-201.

Lee, W. H. K., D. M. Tottingham, and J. O. Ellis (1989). Design and implementation of a PC-based seismic data acquisition, processing, and analysis system, IASPEI Software Library, 1, 21-46.

Tottingham, D. M., and W. H. K. Lee (1989). XDETECT: a fast seismic data acquisition and processing program, U.S. Geol. Surv. Open-File Report 89-205 A and B.

V. Diskette Contents.

This diskette contains four directories:

(1) DIGGER -- source code for the DIGGER by Cutler Digital Design.

(2) DIGIREC -- source code for the DIGIREC by Cutler Digital Design.

(3) XDETECTD -- source code for the XDETECT routines modified for use with the DIGIREC by Cutler Digital Design.

(4) MULTIPLX -- files for layout and artwork for the 64-channel 16-bit multiplex by Dean Tottingham.