

RECENT ABSTRACTS FROM EUROMICRO NEWSLETTERS

## Microprocessing and Microprogramming in Belgium

by

André A.S. Danthine  
Université de LiègeAbstract

When we have been asked to survey the field of microprocessing and microprogramming in Belgium, first for the Euromicro Meeting in Paris last June and now for the Euromicro Newsletter we faced a certain number of questions.

1. What is the exact covering of the field? From the scope of Euromicro, we do not see any reason to limit the survey to microprogrammable processor and to exclude development of (or based to) Intel-like devices.
2. How to make sure to get in touch with all academic institutions and industry group working in the field? As we did not receive any information from industry groups we contact, this survey has been limited to academic institutions. For those who are not mentioned here, Euromicro Newsletter offers a support to update this survey.
3. What degree of details will be more suitable for this survey work? We finally decided to stay at a very global level. By giving in the appendix the addresses of the various institutions mentioned, any interested individual will have the opportunity to get directly much more details than we will be able to provide here. Furthermore, the existence of Euromicro Newsletter is an open invitation to detailed presentation of original aspects of the works briefly mentioned here.
4. How to present the collected information? The easiest way was by academic institutions. We, however, introduced subheadings, related to the scope of interest of Euromicro which allow to read this survey in a non-sequential way.

## Microprogramming and Microprocessors in Italy

by

Mariagiovanna SAMI  
Politecnico di MilanoAbstract

Before presenting the main projects currently developed in Italy in the fields of microprogramming and microprocessing, a first distinction has to be made. While studies on microprogramming involve basic theoretical research as well as investigations on possible applications, the attention concerning microprocessors concerns mainly their use or - possibly - particular characteristics required for some applications. At present, no original work concerning the general problems they introduce in logic design is advanced enough to be mentioned here.

## Microprogramming and Microprocessors in the Netherlands

by

J. Wilmink  
Tech. University TwenteAbstract

This paper gives a short survey of the activities in the field of microprocessors and microprogramming in the Netherlands. In the first part of it the activities within the Universities and non commercial institutes are mentioned. The second part deals with the industrial activity.

The author is aware of the incompleteness of the survey. The reason for it is twofold. First: Some of the activities, especially in the industrie, have confidential aspects. The information may not yet appear in a paper like this. Second: He is not aware of all activities carried out in the field. A list of names of the institutes etc and eventual contactpersons is included. A literature list is not added, because not much literature is available now.

by

Harold W. Lawson, Jr.  
 Mathematics Institute  
 Linköping University  
 Linköping, Sweden

Abstract

The design, use and educational activities related to microprogramming and microprogrammable processors in Sweden are surveyed. The discussions in this paper do not include activities with so-called microprocessors based upon Large Scale Integration techniques. A future paper shall be published to report upon activities in the microprocessor area. The activities reported upon, in this paper, come primarily from Datasaab, L.M. Ericsson, Stansaab and Linköpings University.

## Microprocessor Scorecard

by

Jerry Ogdin  
 Microcomputer Technique

Abstract

When the history of digital electronics is written, 1974 will be remembered as the year of the microprocessor explosion. From humble beginnings with two products in 1971, an industry that had been predicted for at least a decade came to pass. Now, a mere four years later, there are at least twenty-five different microprocessors available, announced, promised or under development.

## An Introduction to Microprogramming

by

Louise H. Jones  
 University of Delaware  
 Newark, Delaware USA

Abstract

The purpose of this article is to provide a brief tutorial introduction to the rapidly expanding field of microprogramming.

## Microcomputer Systems: A Survey

by

Rodnay Zaks  
 Université De Technologie De Compiegne

Abstract

Recent progress in metal-oxide semiconductor (MOS) large-scale integration (LSI) technology has yielded a new type of component, the microcomputer, or "computer-on-a-chip." Its impact is already proving to be spectacular.

## On The Interpretive Mechanisms of Microprogrammed Systems

by

Reiner W. Hartenstein  
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Abstract

In microprogrammable systems a special type of interpretive linkage mechanism is used. This linkage mechanism, among all known interpretive techniques, shows the clearest distinction between linkage implementation and the execution mechanisms of semantics. The essentials of interpretation by micro programs may be used as part of a design guideline for the design of a variety of multi processor systems or multi micro processor systems, aiming hereby at more clearly structured design solutions.

After a short discussion of the interpretive mechanisms, known from microprogrammable systems, its possible impact on the design philosophies for hardware design in computer architecture, and for integrated hardware/software design efforts, is the subject of this paper. Especially one particular design philosophy, derived from the interpretive mechanism of microprogrammable systems, is discussed, which results in computer architectures in form of a hierarchy of interpretive modules. A few examples are mentioned.

by

Gerhard Chroust  
IBM Laboratory Vienna  
Austria

Abstract

This paper tries to give a simple and effective definition of 'microprogramming' by reducing this notion to the concept of a 'microcontrolled' machine. The class of microcontrolled machines can rigorously be defined using the terminology of switching algebra. These definitions are then used to specify quantitative parameters for the classification of microcontrolled machines.

Indirection Feature in Control Address at Micro Level  
A Facility for Macro Interpreting

by

J. Demarteau  
Institut D' Informatique - NAMUR

Abstract

The aim of this paper is to try and describe a new technique for implementing microprograms to form a privileged interpreter of macro-languages. It demonstrates the connexion between the control address mechanism in microinstruction and the structure of a dynamic interpreter. The proposed mechanism, which is like the Eastwood fetch/generator instruction (1), is founded on a microprocedure call generator. The control store and control mechanism of the CPU are split into two specific levels: the first one, MIDEF (Microprocedure DEFINITION) level is for defining short microprocedures, the second, MICALL (Microprocedure CALL) level, for linking these microprocedures together. Independance between microprocedures at MIDEF level allows to link microprocedure dynamically at MICALL level in order to interpret new functions (MACRO instructions).

This paper describes briefly the options that the EPRON (2) project has taken. EPRON being our test-tool for interaction between hard-, firm and software.

A Microprogram Metacompiler

By

Guyot A., Martin P., Mermet J.  
E.N.S.I.M.A.G. - Grenoble - FRANCE

Abstract

We shall call a microprogram metacompiler a system of programs accepting two inputs: a description of an algorithm and a description of a machine on which this algorithm is to be micro-programmed. In our example, the machine is a CASSANDRE description of the 20001 and the algorithm is an Algol W description of multiplication.

The first part of the system analyses the hardware in order to provide a functional network corresponding to the data path, the control hierarchy and a list of incompatibilities. The second part of the system uses this material to produce microprogram schemata. The third part of the system tries to find a time optimized microprogram by a careful allocation of resources.