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DATA BOOK

PNX1300 Series **Media Processors**

Preliminary Specification
Supersedes PNX1300 data of 2001 Oct 12
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Media Processors

PNX1300 Series



PNX1300 Series Data Book

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2002 Feb 15

Preliminary Specification

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Foreword

The TriMedia™ PNX1300 Series is an enhanced version of the TM-1300 family of media processor.

The PNX1300 Series contains an ultra-high performance Very Long Instruction Word processor, as well as a complete intelligent video and audio input/output subsystem. The processor has an instruction set that is optimized for processing audio, video and graphics. It includes powerful SIMD multimedia operators for eight- and 16-bit signal datatypes as well as a full complement of 32-bit IEEE compatible floating point operations.

The PNX1300 Series is intended as a multi-standard programmable video, audio and graphics processor. It can either be used standalone, or as an accelerator to a general purpose processor.

The architecture of the TriMedia family came about as the result of many years of effort of many dedicated individuals. Going back in history, the origin of TriMedia was laid by the LIFE-1 VLIW processor, designed by Junien Labrousse and myself in 1987. Work continued afterwards in Philips Research Labs, Palo Alto. My special thanks go to the entire Palo Alto research team: Mike Ang, Uzi Bar-Gadda, Peter Donovan, Martin Freeman, Eino Jacobs, Beomsup Kim, Bob Law, Yen Lee, Vijay Mehra, Pieter van der Meulen, Ross Morley, Mariette Parekh, Bill Sommer, Artur Sorkin and Pierre Uszynski.

The Palo Alto period matured the architecture—we ported all video and audio algorithms that we could find to the compiler/simulator and refined the operation set. In addition, we learned how to give the architecture a market direction. In May 1994, Philips management—in particular Cees-Jan Koomen, Eddy Odijk, Theo Claassen and Doug Dunn—decided to develop TriMedia into a major Philips Semiconductors product line.

Under the guidance of Keith Flagler, the TriMedia team was built. All of them contributed to take this from a set of interesting ideas to a reliable and competitive product in a short period of time. The initial TriMedia team included Fuad Abu Nofal, Karel Allen, Mike Ang, Robert Aquino, Manju Asthana, Patrick de Bakker, Shiv Balakrishnan, Jai Bannur, Marc Berger, Sunil Bhandari, Rusty Bieseles, Ahmet Bindal, David Blakely, Hans Bouwmeester, Steve Bowden, Robert Bradfield, Nancy Breede, Shawn Brown, Sujay Chari, Catherine Chen, Howen Chen, Yan-ming Chen, Yong Cho, Scott Clapper, Matthew Clayson, Paul Coelho, Richard Dodds, Marc Duranton, Darcia Eding, Aaron Emigh, Li Chi Feng, Keith Flagler, Jean Gobert, Sergio Golombek, Mike Grimwood, Yudi Halim, Hari Hampapuram, Carl Hartshorn, Judy Heider, Laura Hrenko, Jim Hsu, Eino Jacobs, Marcel Janssens, Patricia Jones, Hann-Hwan Ju, Jayne Keith, Bhushan Kerur, Ayub Khan, Keith Knowles, Mike Kong, Ashok Krishnamurti, Yen Lee, Patrick Leong, Bill Lin, Laura Ling, Chialun Lu, Naeem Maan, Nahid Mansipur,

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Expert help and feedback was received from many. In particular, I'd like to mention Kees van Zon of Philips Eindhoven for the help with filtering-related issues, and Craig Clapp of PictureTel for excellent feedback on all aspects of the architecture.

My special thanks go to Joe Kostelec. He made me understand that my ambitions could better be realized in California than in Europe. Furthermore, his vision and his wisdom are credited with keeping this project alive and growing until the 'investment decision.'

The vision of a universal media accelerator is credited to Jaap de Hoog. Jaap, I wish you were here to see it come to fruition.

—Gerrit Slavenburg

After the initial TM-1000 product, the TM-1100, TM-1300 and now PNX1300 Series chips have been successfully integrated in many video and audio products. It has been my pleasure to have been involved in these designs and would like to thank the people involved in TM-1300 and PNX1300 Series projects under the guidance of Cees Hartgring and Simon Wegerif. The team included Karel Allen, Tien-Cheng Bau, Jim Campbell, Anitamk Chan, John Chang, Roel Coppoolse, Taufik Dakhil, Mitch Danil, Nam Dao, Patrick Debaumarche, Thuy Duong, Torsten Fink, Jan Grotenbreg, Mohammad Hafeez, Feng Hao, Farah Jubran, Babu Rao Kandamalla, Aki Kaniel, Yan-Ling Li, Ying-Chao Liu, Naeem Maan, Don Marshal, Thomas Meyer, Javed Mukarram, Long Nguyen, Tu Nghiem, Elaine Outler, Charles Peplinski, Duc T. Pham, Thorwald Rabeler, Raquel Ruiz, Ensieh Saffari, Hani Salloum, Wenyi Song, Stephen Tomasello, Tran Tung, Maria F. Wangsahamidjaja, Chang-Ming Yang, Mohammed I. Yousuf, Hui Zhang and Gerrit Slavenburg.

- Luis Lucas

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