

Japan Embedded Linux Consortium

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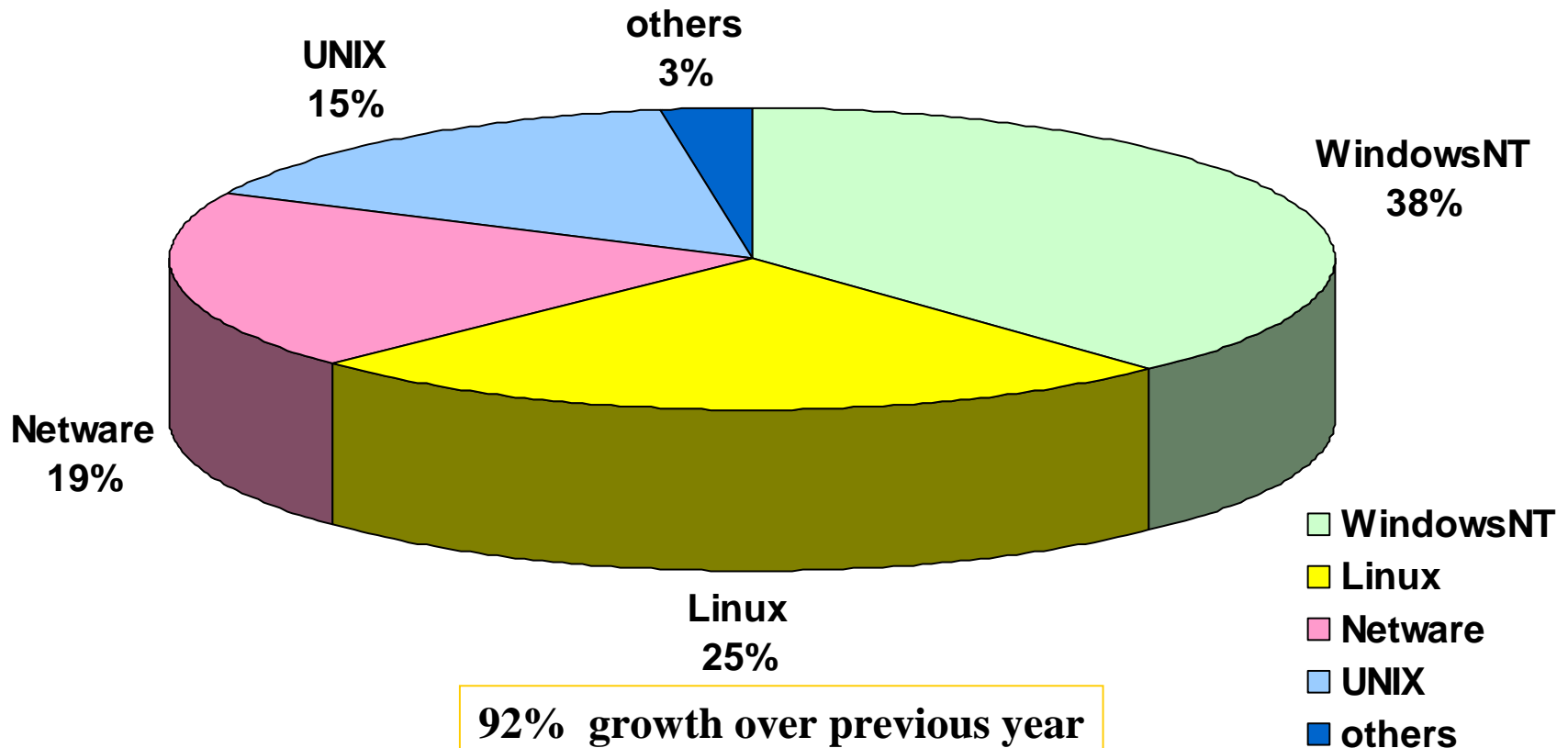
<http://www.emblix.org/>

Business and Technology Trends

- Linux has surfaced in the main stream of the embedded systems industry
 - Linux World Expo Tokyo August 1999
 - Designs from server to PDA, and internet appliances
- Business & Technical Adoption Time-Lag exists between the US and Japan
 - OSS/GPL may be a barrier, lack of understanding
 - Linux still maturing for small devices and real time applications

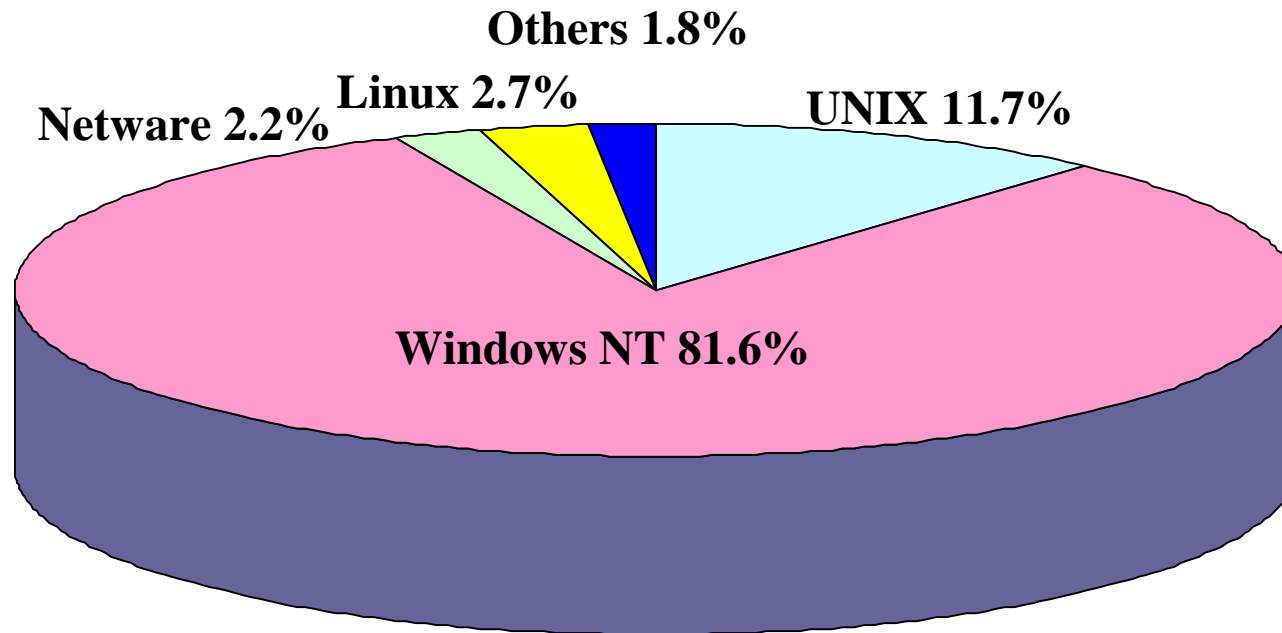
Shipment of Servers W.W. in 1999

Source ; IDC



Shipment of Servers in Japan '99

Source: IDC



EMBEDDED TRENDS

- **Embedded Devices becoming more connected and more networked**
- **Growing demands for skilled embedded engineering resources for the new connected and networked world**

Japan Embedded Systems Technology Survey

● Method of Survey

- mail-in questionnaire sheet and on-site responses at Exhibition (No Web)

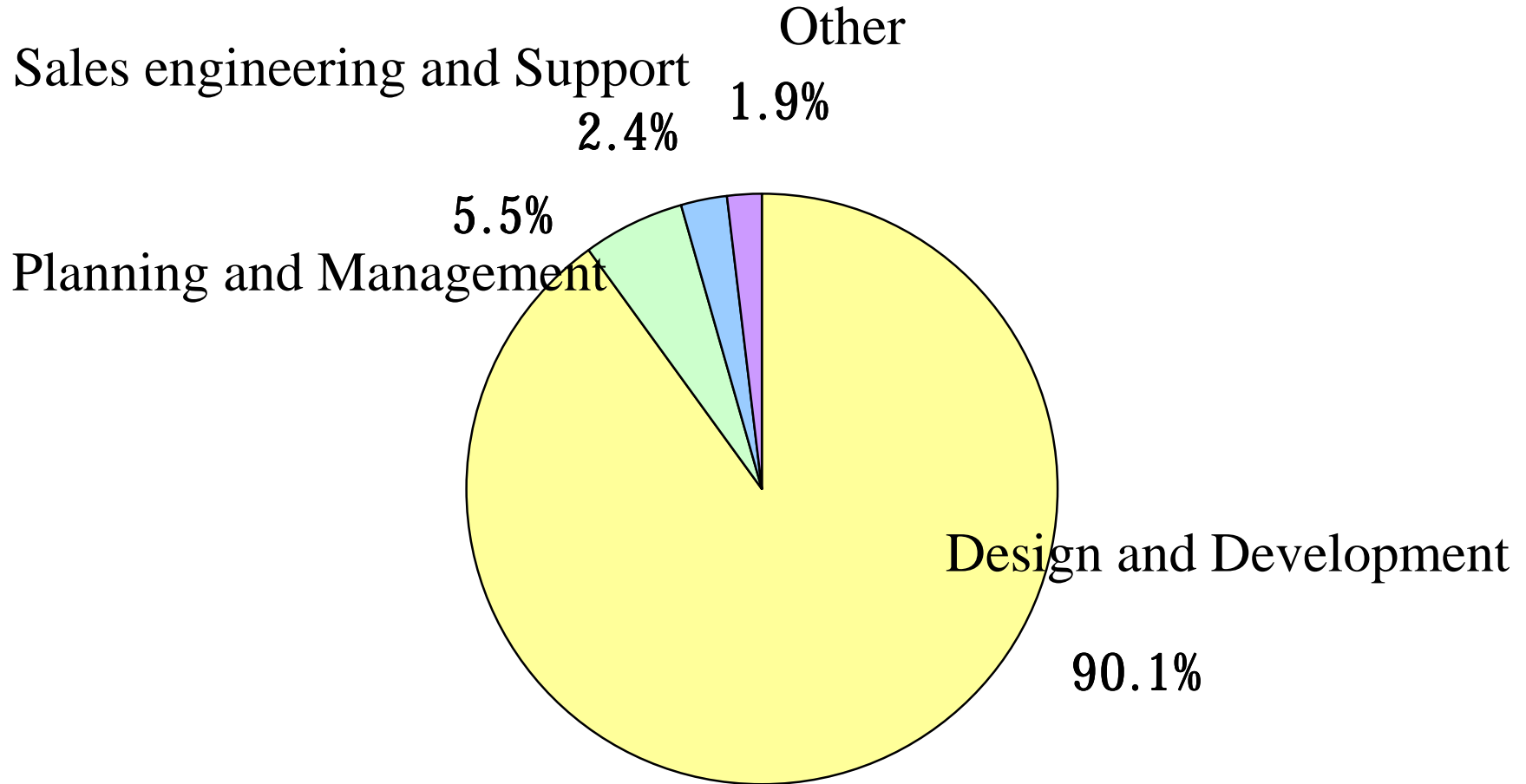
● Period of Survey

- Nov.'98~Feb.'99 (survey taken every year)

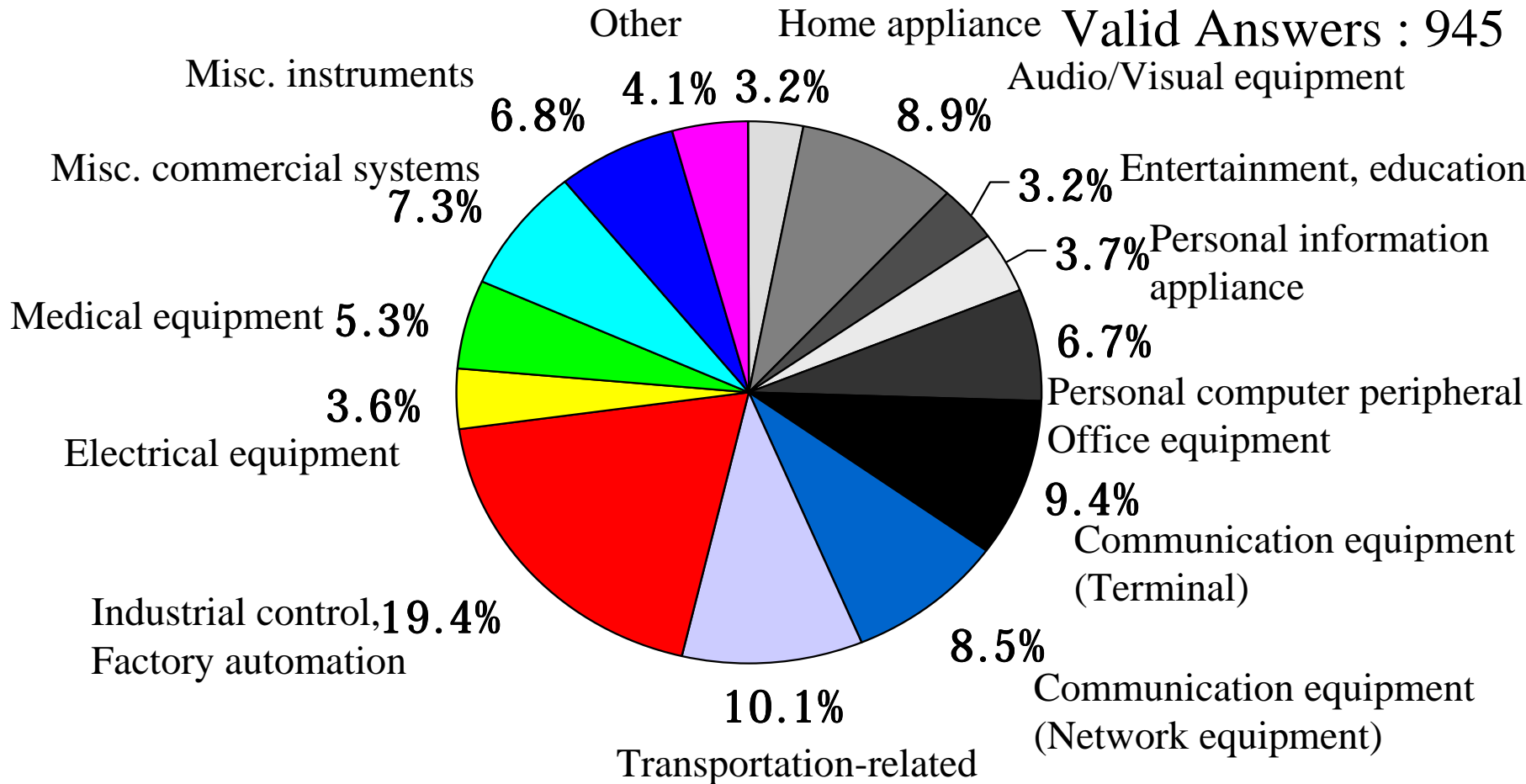
● Results Available on

- <http://www.itron.gr.jp/home-j.html>

Occupations of the Respondents

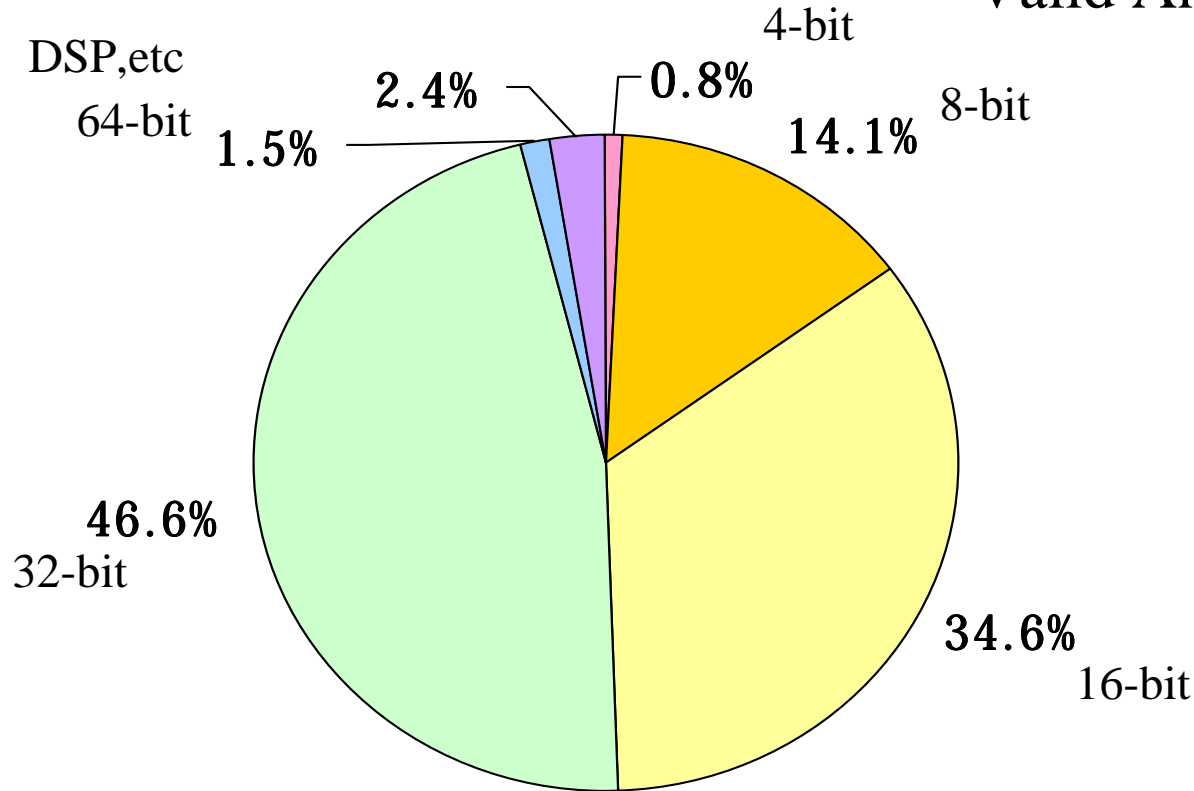


Application Areas of Recently Developed Embedded Systems

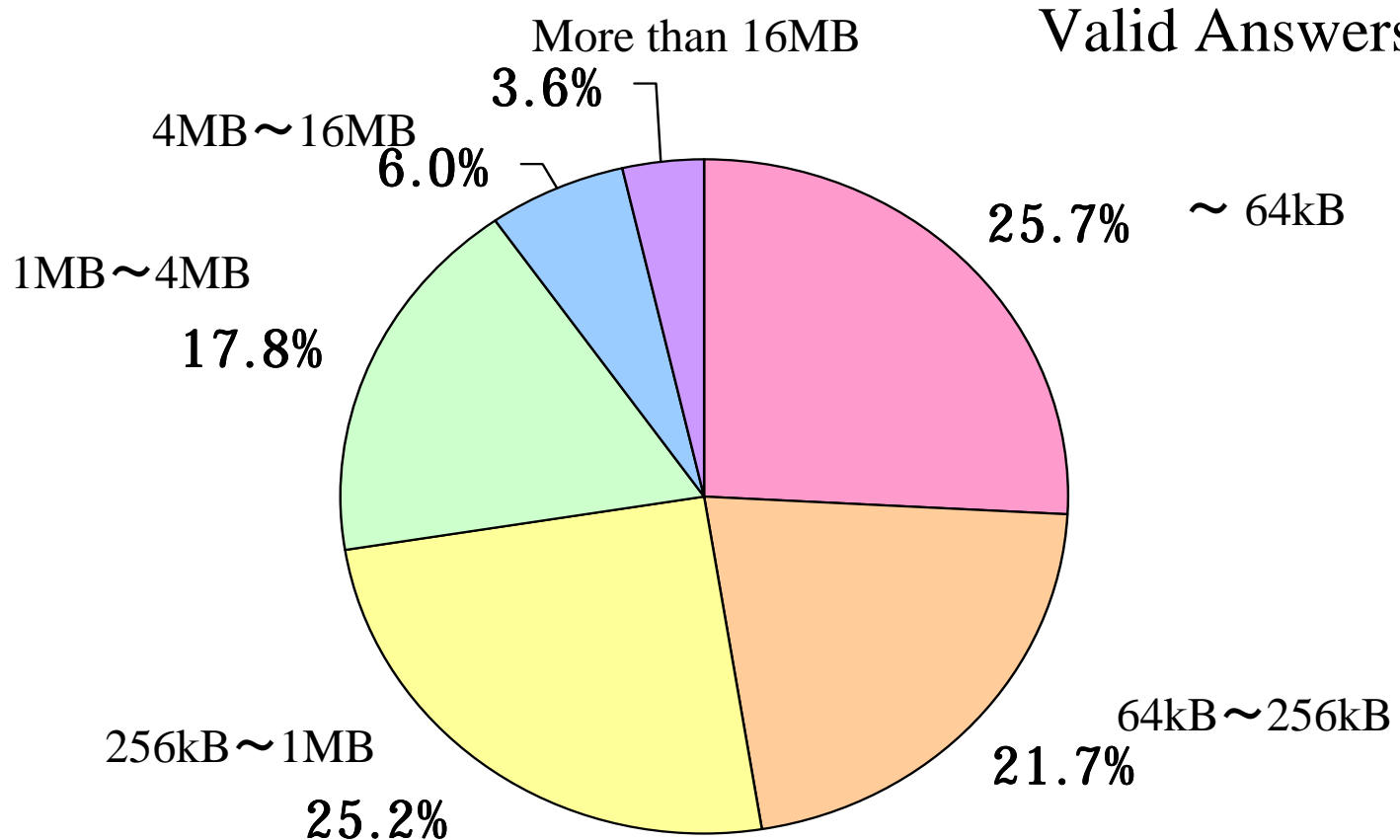


Processors Used in Recently Developed Embedded Systems

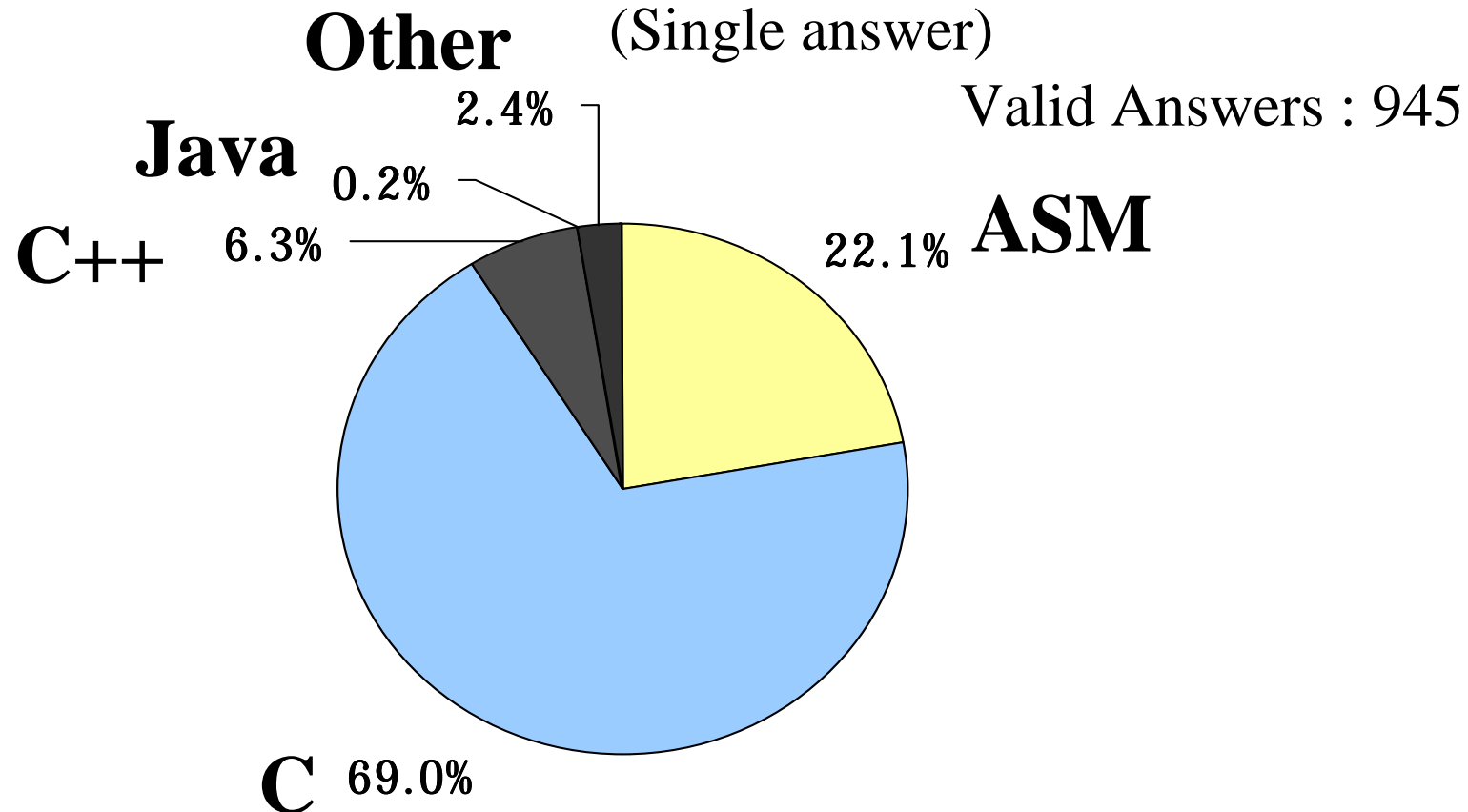
Valid Answers : 945



Program Size in Recently Developed Embedded Systems



Programming Languages Used for Recently Developed Systems

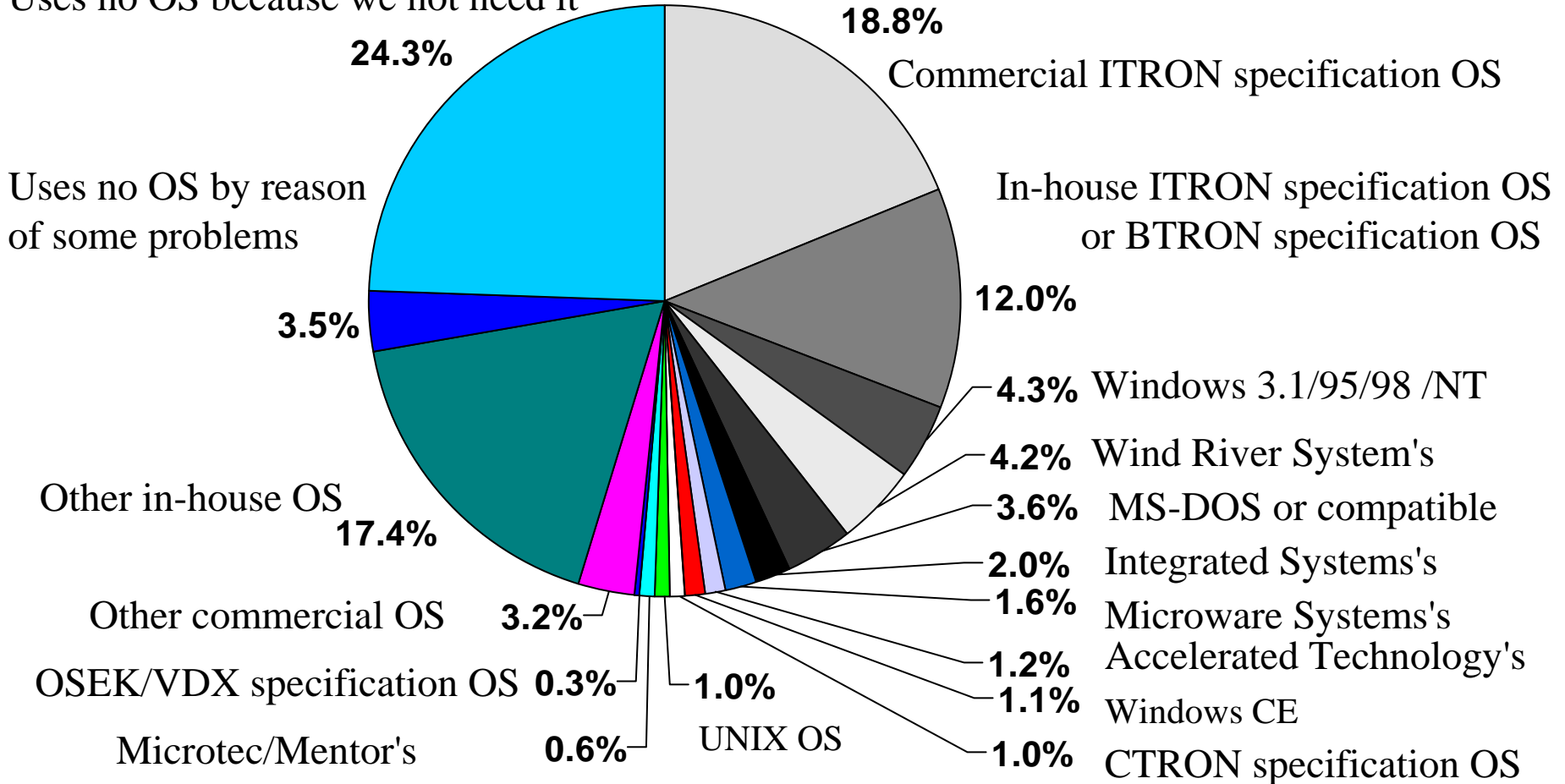


OS Embedded in Recently Developed Embedded Systems

Valid Answers : 945

Uses no OS because we not need it

Uses no OS by reason of some problems

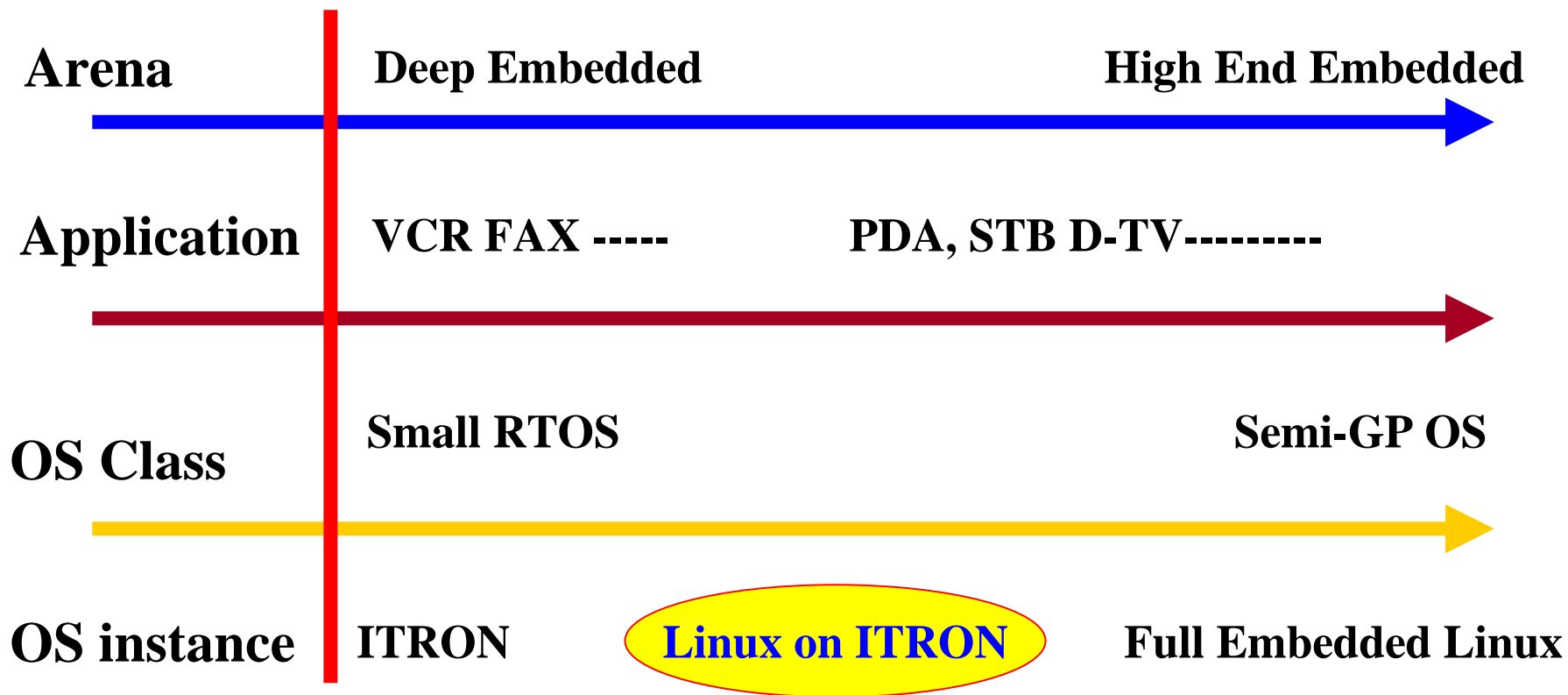


Characteristics of the Japanese RTOS Market

(excluded non-RTOS designs)

- **Around 50% designs use ITRON spec. RTOS**
 - **for deep embedded systems**
- **25% use in-house RTOS**
 - **potential users for embedded Linux**
- **25% uses off the shelf RTOS**
 - **potential users for embedded Linux**

Market Demands for OS



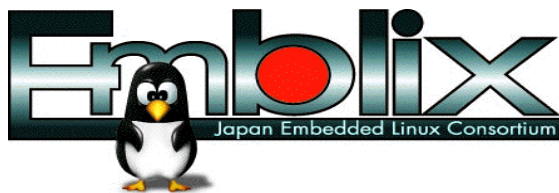
Expectations for Embedded Linux

- **Cost** **Royalty Free**
- **Open** **Open Source Development Model**
Not only for the Kernel but for Tools and
related technologies - interoperability
- **Scalability** **From small devices to large servers**
- **Issues:** **Support, Maintenance,**
Quality Assurance, Legal

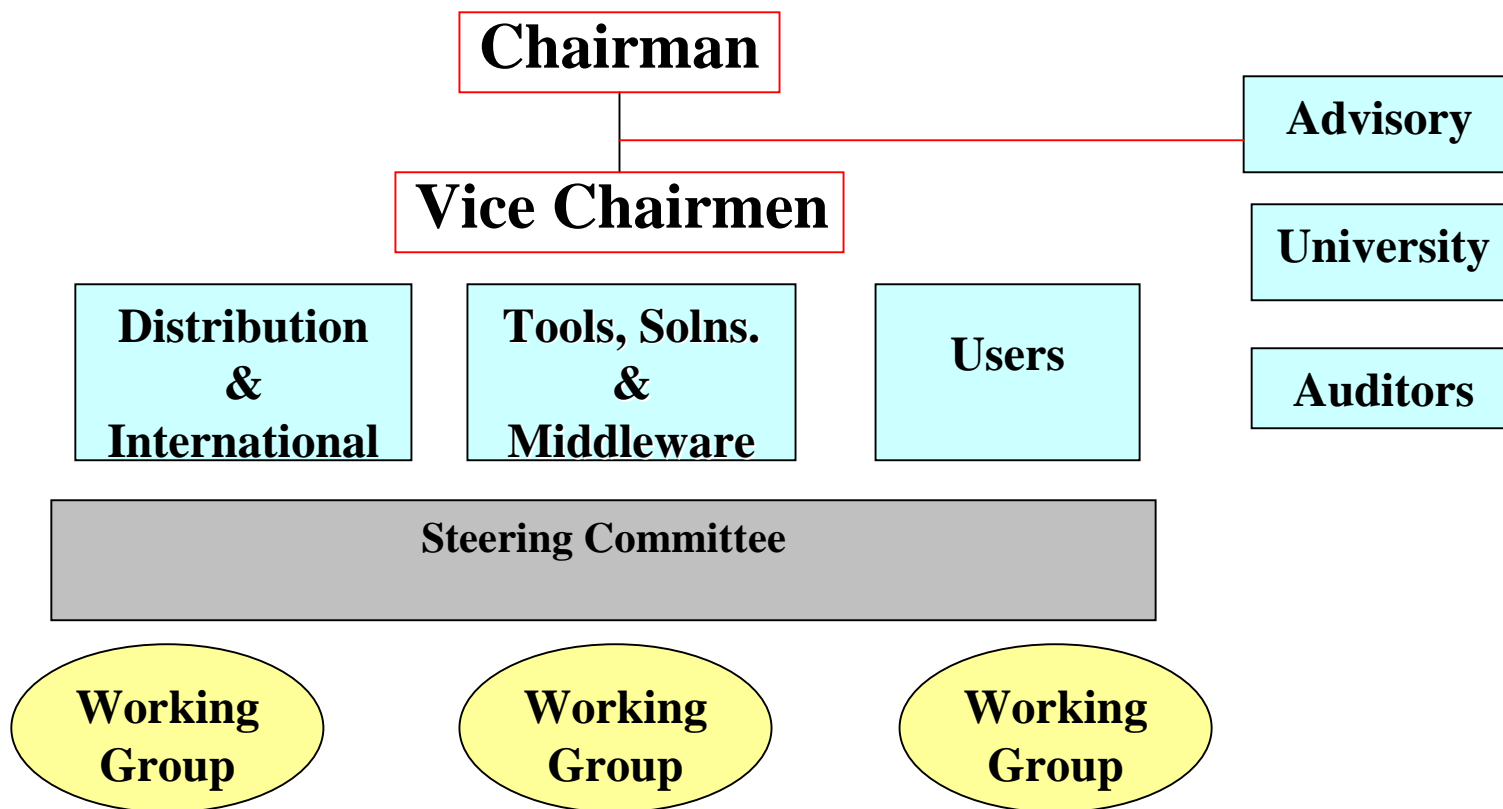
Purpose of EMBLIX

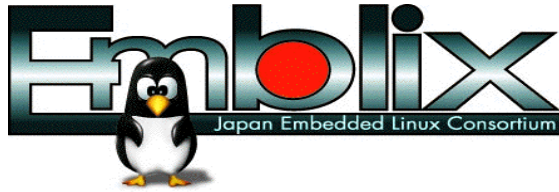
- **Promotion of Embedded Linux in Japan (Industry/Academia)**
- **Education (OpenSource, Legal: Licensing, Liabilities)**
- **Standardization of Embedded Linux related Technologies**
 - **Development Tools**
 - **Power Management**
 - including measures for failover/rollover
 - **New I/O devices**
 - **Real Time capabilities**
 - Hybrid scheme for iTRON and Linux "Linux on ITRON"
- **To Exchange information with W.W. Linux Organizations**





Organization





Organization

Initial Board Members were appointed July 13th.

- **Chairman**

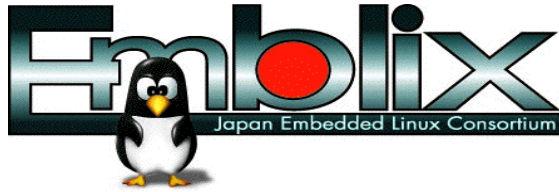
- **Dr. Tatsuo Nakajima of Waseda Univ.**

- **Vice Chairmen**

- **Distribution/Global; Mr. John Cheuck of Turbo Linux**

- **Tools & MW ; Mr. Yukio Kunimine of GAIO Tech.**

- **User; asking a large motorcar company**



Organization

● Secretariat

- Mr. H. Amemiya, Elmic Systems

● Auditors

- Mr. H. Arima, Monta Vista Japan
- Mr. Kawahara, Advanced Data Controls

● Advisory

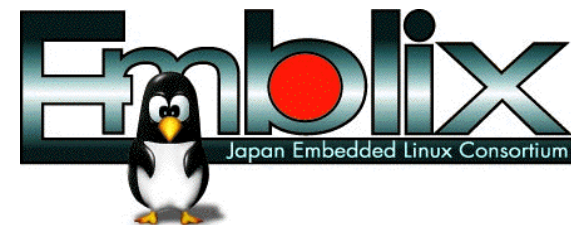
- Dr. H. Monden, NEC
- Dr. K. Tamaru, TOSHIBA
- Mr. H. Ito, FUJITSU

EMBLIX Founding Members

Access Co., Ltd.
Advanced Data Controls Corporation
FDS Embedded Systems Co.
ERG Co., Ltd.
Elmic Systems Inc.
Gaio Technology Co., Ltd.
CATS Inc.
Canon Inc.
Centura Embedded Systems Co., Ltd.
Turbolinux Japan K.K.
Densan Co., Ltd.
Toshiba Corporation

Toyohashi University of Science and Technology
MITSUBISHI electric Corporation
NEC Corporation / NEC Electronic Devices
Hitachi, Ltd.
Fujitsu Ltd.
Metrowerks Co., Ltd.
Montavista Software Japan Co., Ltd.
Lineo Japan, Inc.
Linux-Koubou
Red Hat Inc.
YDC Corporation.
Waseda University

[No. of EMBLIX Founding members = 24]

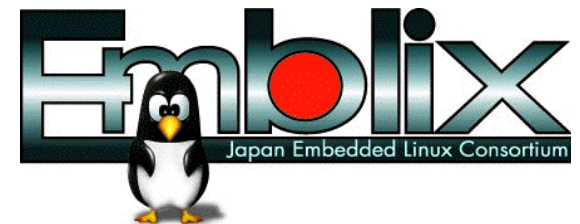


EMBLIX Current Membership

61 Members as of 9/6/00

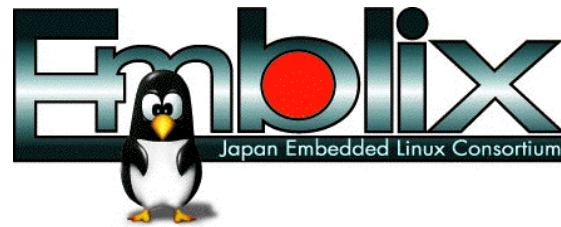
Academic	5%
Technology Vendors	35%
Solutions Providers/SIs	20%
Semiconductor	15%
Users	25%

Canon, Alpine, Sharp, Mitsubishi, NTT Communications,
Epson/Kowa, LG Japan, Nokia, Funai, Sony



History of Emblix and Activity Schedule

- **Founded on July 13, 2000 -**
- **Joint Meeting With ELC Sept. 27th.'2000**
- **EMBLIX Seminar End of Oct.'2000**
- **1st General Meeting Nov.'2000**
 - **1st General Board Election**



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