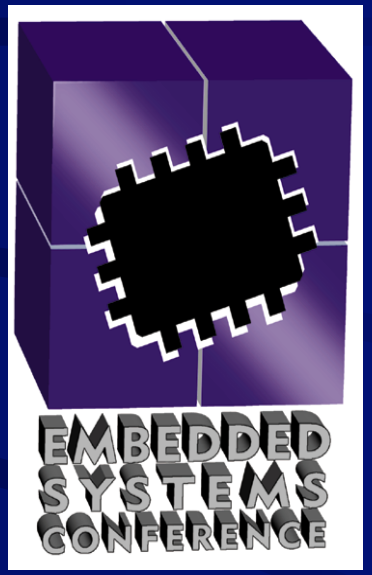


A complete CMP embedded package

1999 *Embedded Systems Programming* Subscriber Study

Mailed out	1,500
returned undeliverable	45
Base	1,455
returned unusable	17
returned usable	410
Total returned	427

Total preliminary report response rate: 29.3%

(Conducted by Wilson Research Group)

Survey Coverage

- Programming Languages & Host Operating Systems
- MCUs/Embedded MPUs
- DSPs
- Memories
- Software Protocols/Stacks
- Web Products/Tools
- In-Circuit Emulators
- Logic Analyzers
- Oscilloscopes
- Device programmers
- RTOSes/Kernals
- Compilers
- Software Debuggers
- Software Configuration Management Tools
- Single Board Computers
- Intellectual Property
- FPGAs/CPLDs
- HW/SW Co-Design
- Embedded Systems Work Environments

160+ Questions
Market & Mind Share

Programming Language Trends

	1997	1998	1999
C	80.7%	81.4%	79.0%
Assembly	70.4%	70.1%	61.0%
C ++	35.9%	39.4%	46.6%
Visual Basic	13.0%	16.2%	14.4%
Pascal	4.2%	2.6%	2.0%
Ada	6.4%	4.9%	6.1%
Java	6.1%	7.0%	9.3%
HDL / VHDL	6.1%	5.2%	6.6%
Basic	12.5%	9.3%	8.5%
Forth	3.4%	2.3%	2.2%
eC++	-	-	.7%

Base: 409 1997
345 1998
410 1999

1997- 1999 *ESP* Subscriber Studie

Have you used an object-oriented methodology for your embedded designs in the last 12 months?

Yes.....47.3%

Are you considering an object-oriented methodology in the next 12 months?

Yes.....69.0%

Base: 410

Which of the following object-oriented programming methodologies have you used for your embedded designs?

OMT/UML	44.8%
Booch	31.4%
Shlaer–Mellor	16.5%
SDL	5.7%
ROOM	2.1%
S/ART	1.0%

Base: 194

1999 *ESP* Subscriber Study

Which FOUR of the following object-oriented programming features are most important to you in your embedded designs?

Promotes Reuse	57.0%
Encapsulation	56.0%
Class inheritance	49.5%
Programming tools available	45.7%
Library available	30.2%
Separation of use and implementation	30.2%
Polymorphism	23.4%
Function Overloading	19.6%
Virtual functions	17.9%
Direction of industry	16.5%
Wide vendor acceptance and support	11.7%

Base: 291

1999 *ESP* Subscriber Study

Computers used/planning to use as host machines

	Have Used	Plan to Use
PC	90.0 %	90.5%
UNIX Workstation	37.3%	37.3%
DEC VAX	3.7%	2.4%
Macintosh	2.7%	3.2%

Base: 410

Host Operating Systems in use by Embedded Developers

	Have Used	Plan to Use
Any Windows (Net)	85.4%	85.4%
Windows 3.1/95/98	61.5%	61.0%
Windows NT	53.7%	57.3%
UNIX	32.3%	32.7%
DOS	26.6%	28.8%
Linux	14.6%	22.0%
Mac-OS	2.7%	3.7%

Base: 410

Are you involved in evaluating, recommending, specifying, selecting, or purchasing the TARGET MPU/ MCUs or DSPs used in your embedded design projects?

Yes.....78.5%

54.7% approve selection

Base: 410

In which of the following ways are you involved in evaluating, recommending, specifying, selecting, or purchasing target MPU/MCUs used in your embedded design projects?

Evaluate products	83.5%
Determine specifications	78.9%
Part of decision-making committee	73.0%
Specify manufacturer/chip	63.7%
Approve Selection	54.7%

Base: 322

1999 *ESP* Subscriber Study

Which FIVE items are typically most important to you in selecting a MCU or MPU for your embedded designs?

• Software development tools	69.9%
• Price	59.6%
• Available I/O	41.3%
• Code compatibility	39.8%
• Hardware development tools	35.1%
• Familiarity with architecture	33.2%
• Documentation	28.9%
• Company reputation	28.6%

Base: 322

1999 *ESP* Subscriber Study

Which of the following kinds of chips have you used in the last 12 months, or are you considering using in the next 12 months for your embedded designs

- CPU/DSP hybrid chips.....
  56.6%
- System-on-chip.....
  23.7%
- Media processor.....8.8%
- Other.....4.9%

Base: 410

Are you involved with defining your embedded system architecture?

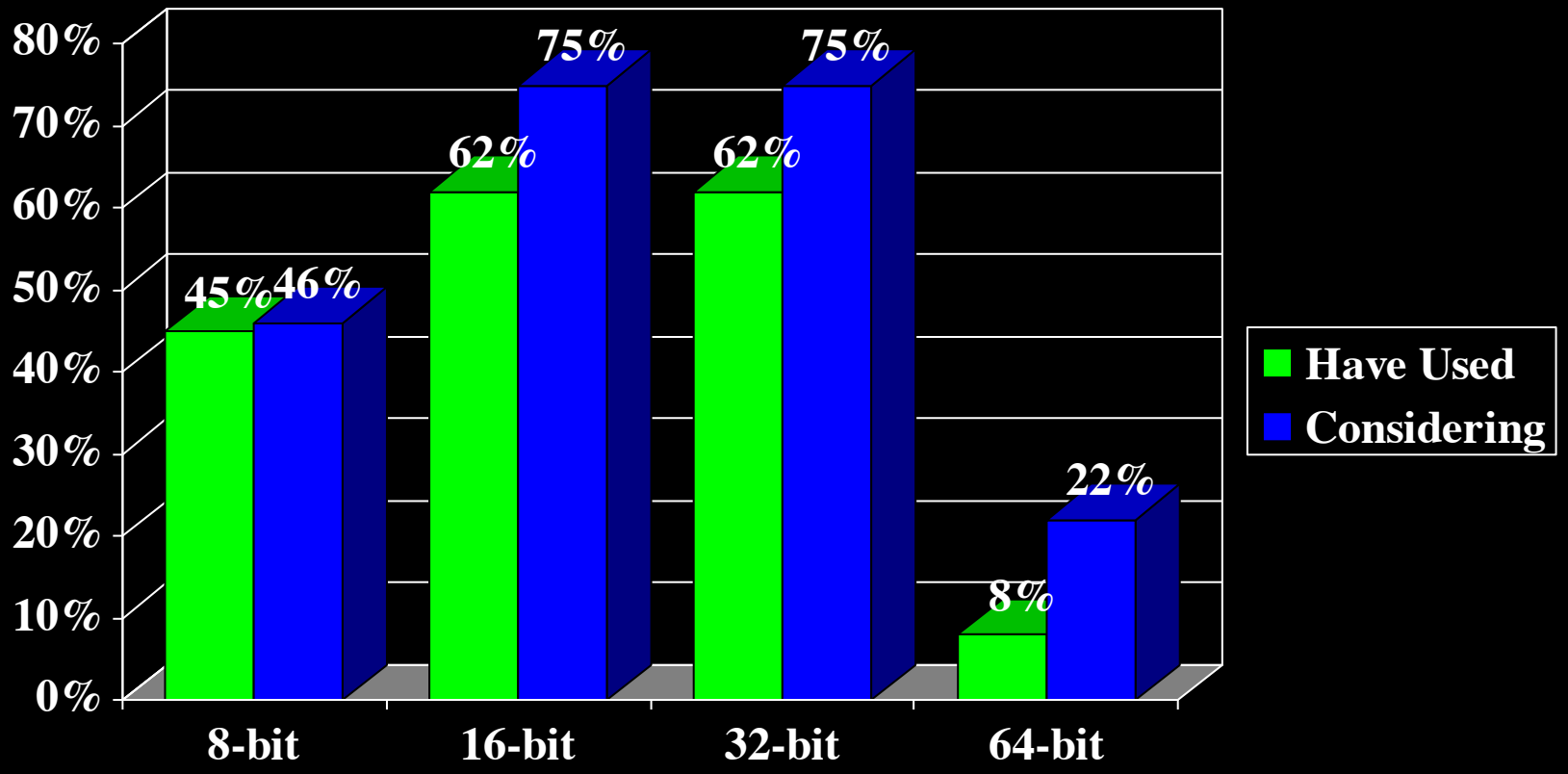
Yes.....82.7%

No.....17.3%

Base: 410

Chip Architecture Trends

by number of designs



Base: 410

1999 *ESP* Subscriber Study

Which 8-bit chip architectures (targets) have you used or are you considering for your embedded projects?

	Have Used	Considering
Intel 80XX, 80CXX	36.7%	21.9%
Motorola 68HC11	30.0%	34.8%
Microchip PIC16	29.4%	33.5%
Atmel 80XX, 80CXX	15.0%	14.2%
Motorola 68HC05	14.4%	12.9%
Philips 80XX, 80CXX	12.8%	16.1%
Intel 80C251	12.2%	15.5%
Motorola 68XX	12.2%	12.3%
Zilog Z8/80/180	12.2%	10.3%
Microchip PIC17	11.7%	19.4%
Dallas 80XX, 80CXX	10.6%	10.3%
Atmel AVR RISC	8.3%	10.3%
Motorola 68HC08	7.8%	11.6%

Base: 180, used
155, considering

1999 *ESP* Subscriber Study

Which 16-bit chip architectures (targets) have you used or are you considering for your embedded projects?

	Have Used	Considering
Intel 8086/186	34.2%	25.5%
AMD 186/188	16.8%	17.6%
Motorola 68HC16	16.3%	23.4%
Intel 8096/196/296	15.2%	16.5%
Motorola 68HC12	14.1%	21.8%
Siemens 80C166/167	9.2%	10.1%
Hitachi H8	7.6%	9.0%
Zilog Z380	2.7%	5.3%
NEC 78K3, 78K4	2.2%	--
Philips XA	1.6%	5.9%
ST Micro ST 9/10	1.6%	2.1%
WDC 65C16	1.1%	1.6%
Toshiba TLCS-900	1.1%	1.6%

Base: 184, used
188, considering

1999 *ESP* Subscriber Study

Which 32-bit chip architectures (targets) have you used or are you considering for your embedded projects?

	Have Used	Considering
Intel Pentium	26.0%	19.7%
Motorola 683XX	22.4%	20.7%
Intel 386/486	22.0%	16.8%
Intel Pentium II	20.9%	19.7%
Motorola 680X0	17.3%	8.4%
MIPS (any)	11.8%	12.3%
IBM/Motorola PPC 6XX	11.4%	9.1%
Motorola PPC 8XX	11.0%	18.8%
Intel i960	11.0%	6.1%
Intel Pentium III	9.4%	20.1%
Motorola PPC 7XX	8.7%	13.9%
AMD 386/486	7.9%	6.1%
ARM (any)	6.7%	11.3%
Motorola ColdFire	6.3%	10.0%

Base: 254, using
309, considering

1999 *ESP* Subscriber Study

Which 64-bit chip architectures (targets) have you used or are you considering for your embedded projects?

	Have Used	Considering
Digital Alpha	25.0%	22.0%
Motorola PowerPC 620	18.8%	28.6%
Sun UltraSPARC	15.6%	17.6%
IDT R46XX, R47XX	15.6%	11.0%
IDT R5000	9.4%	9.9%
NEC VR4300/5000	3.1%	7.7%
QED RM5230/7000	3.1%	3.3%
NEC MIPS R10000	---	7.7%
Toshiba MIPS R4400	---	6.6%
LSI Logic 4XXX	---	3.3%
NKK R4645	---	---

Base: 32, using
91, considering

1999 *ESP* Subscriber Study

DSP use in 1999:

Is your company currently designing embedded systems using digital signal processing chips?

Yes currently……..38.0%
No, but plan to in the next 12 months……6.6%
No, but may consider in the next 12 months……..20.2%
No, not using or considering using
DSP chips in the future……..29.3%
Don't know……..5.9%

Base:410

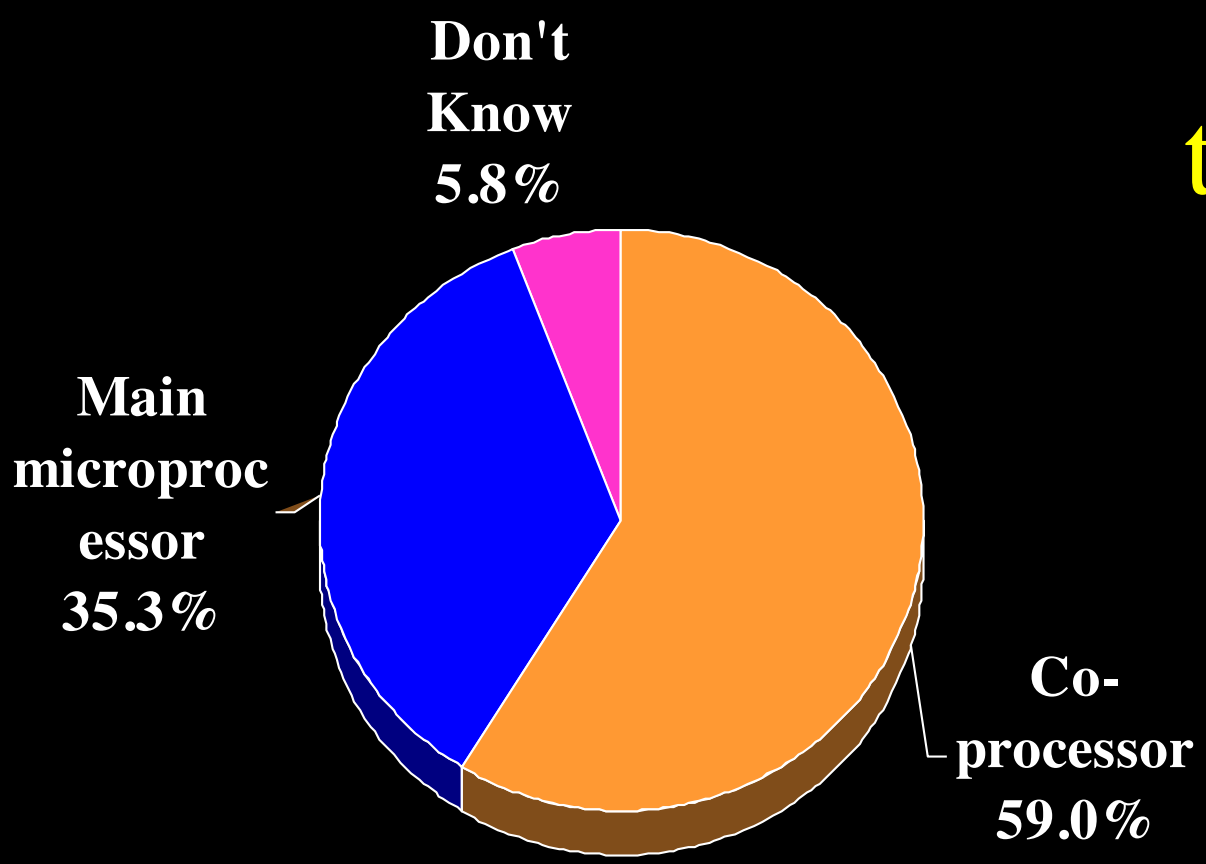
Top DSP chips used/considering using for embedded designs

	Considering	Have Used
Any Texas Instruments (Net)	48.7%	43.2%
Texas Instruments TMS 320C4XX/C5XX	23.7%	21.4%
Texas Instruments TMS 320C3X	14.7%	12.8%
Texas Instruments TMS 320C1X/C2X	10.3%	12.8%
Texas Instruments TMS 320C6X	9.6%	17.3%
Texas Instruments TMS 320C8X	2.6%	7.1%
Any Analog (Net)	21.8%	24.4%
Analog Devices ADSP 21XX(X)	14.7%	16.2%
Analog Devices SHARC	9.6%	13.2%
Any Motorola (Net)	16.0%	12.8%
Motorola DSP 563XX	16.0%	12.8%
Motorola DSP 566XX	3.8%	6.4%
Motorola DSP9600XX	3.2%	–
Motorola DSP568XX	2.6%	7.5%
Motorola/Lucent StarCore	–	2.6%
Any Lucent (Net)	3.2%	5.6%

Base: 156 have used
266 considering

1999 *ESP* Subscriber Study

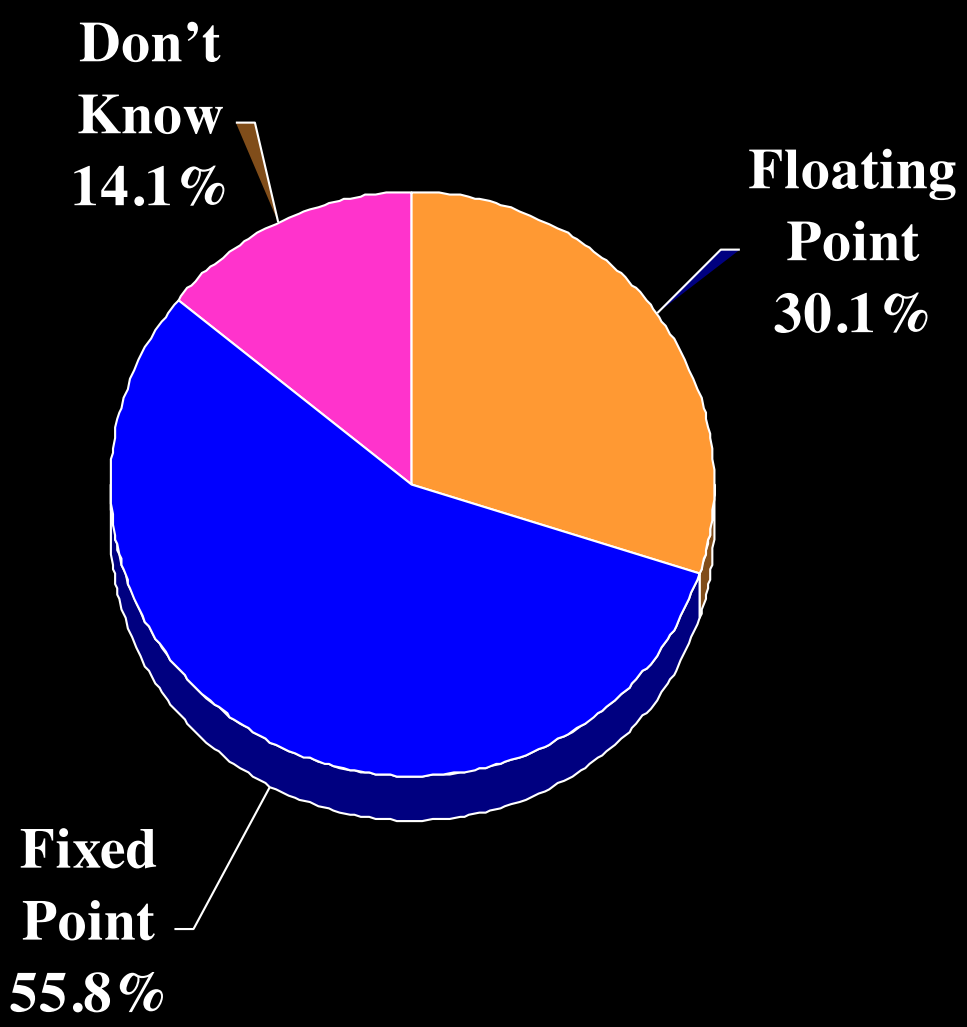
In which way do you typically use DSPs?



Base: 156

1999 *ESP* Subscriber Study

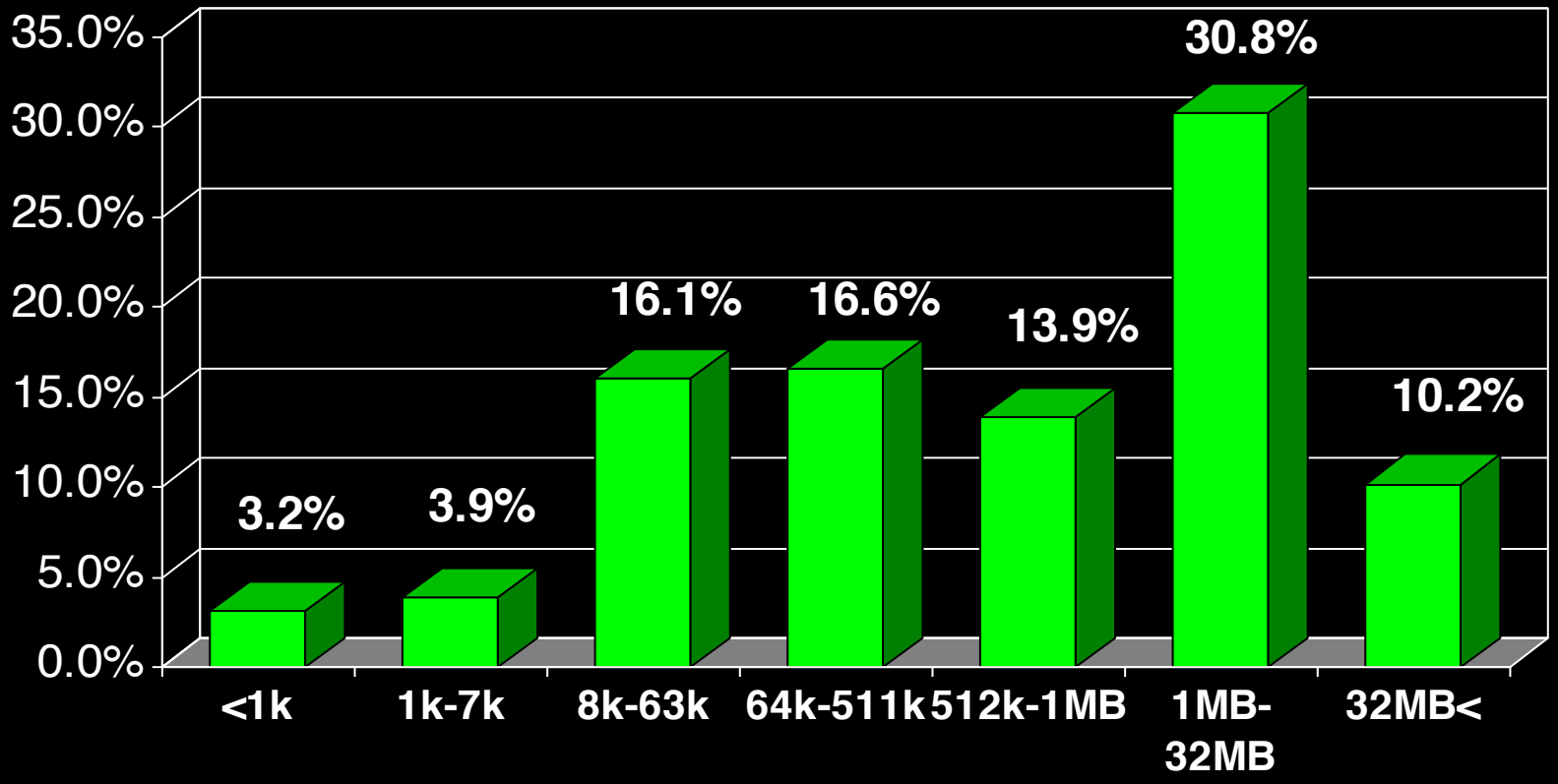
What type of DSP do you typically use?



Base: 156

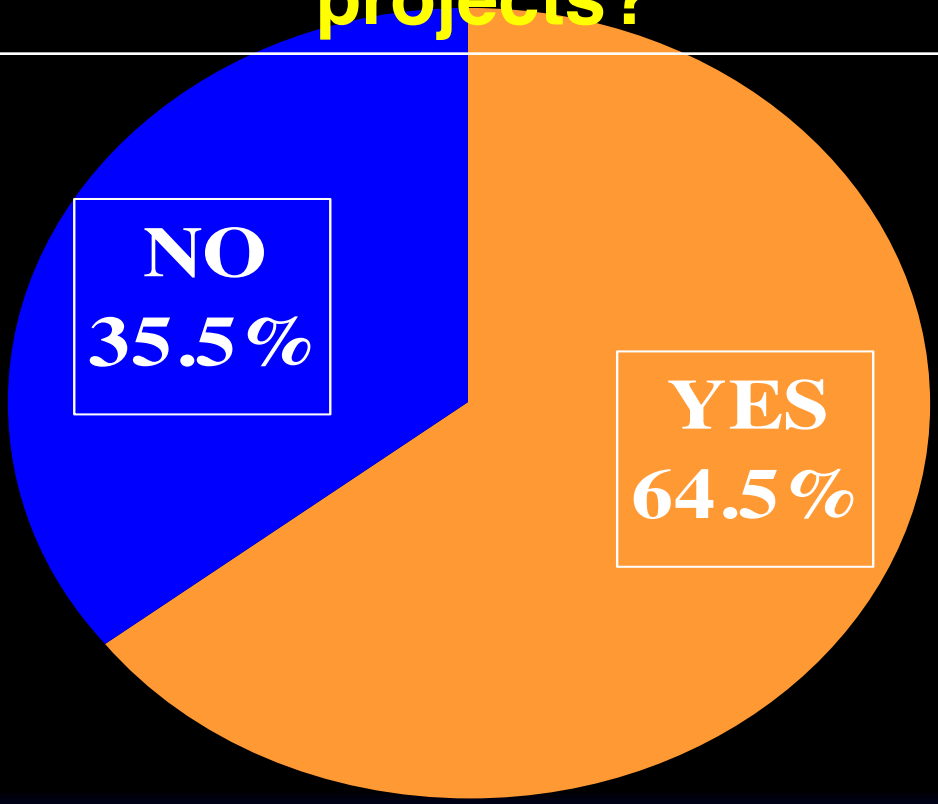
1999 *ESP* Subscriber Study

What were the target memory requirements for your last embedded development project?



Base: 410

Are you in any way involved in evaluating, recommending, specifying, selecting or purchasing memories in your embedded design projects?



Base: 410

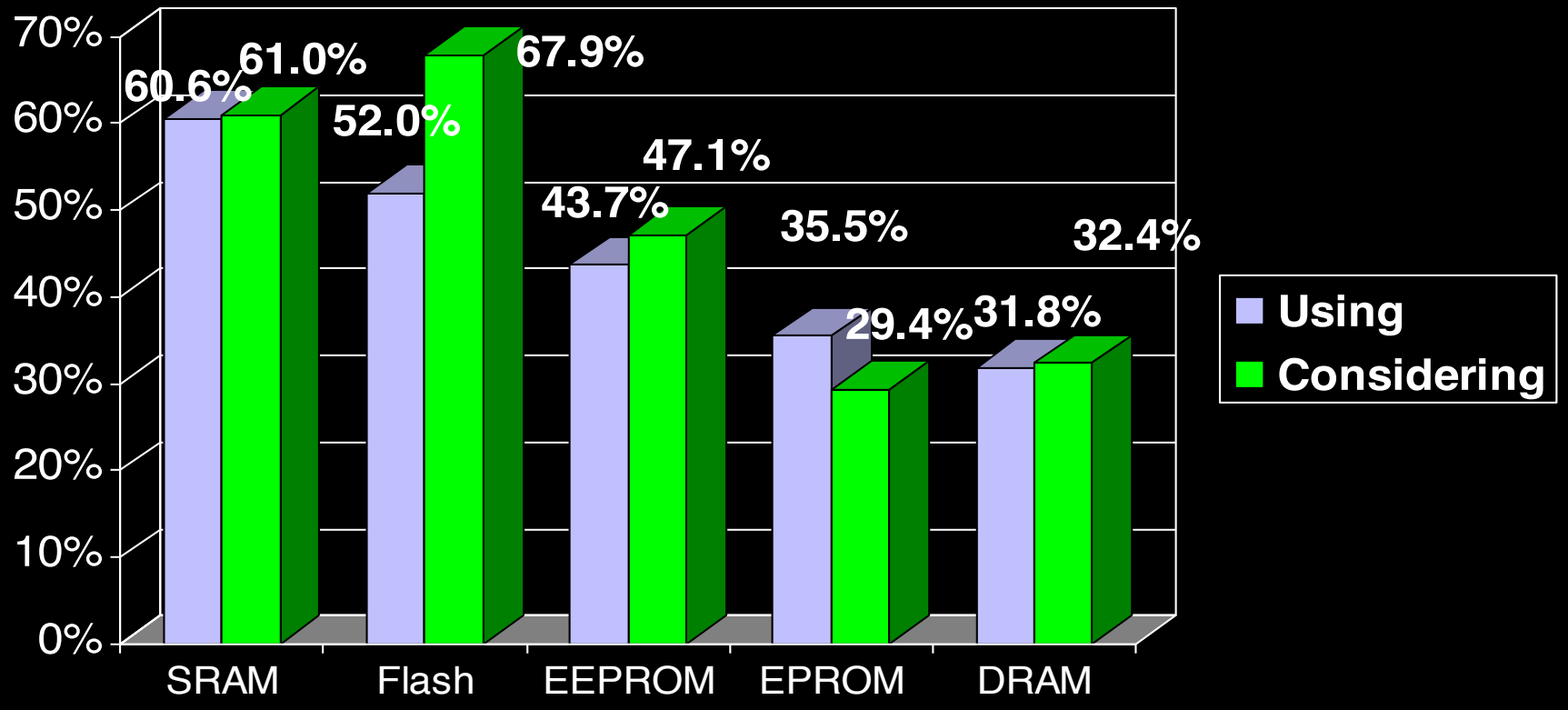
1999 *ESP* Subscriber Study

Way involved in purchase of memories used in embedded design

Determine Specifications	84.3%
Evaluate Products	78.2%
Part of decision-making committee	70.1%
Specify Manufacturer/Chip	66.3%
Approve Selection	61.6%
All of the Above	48.3%

Base: 211

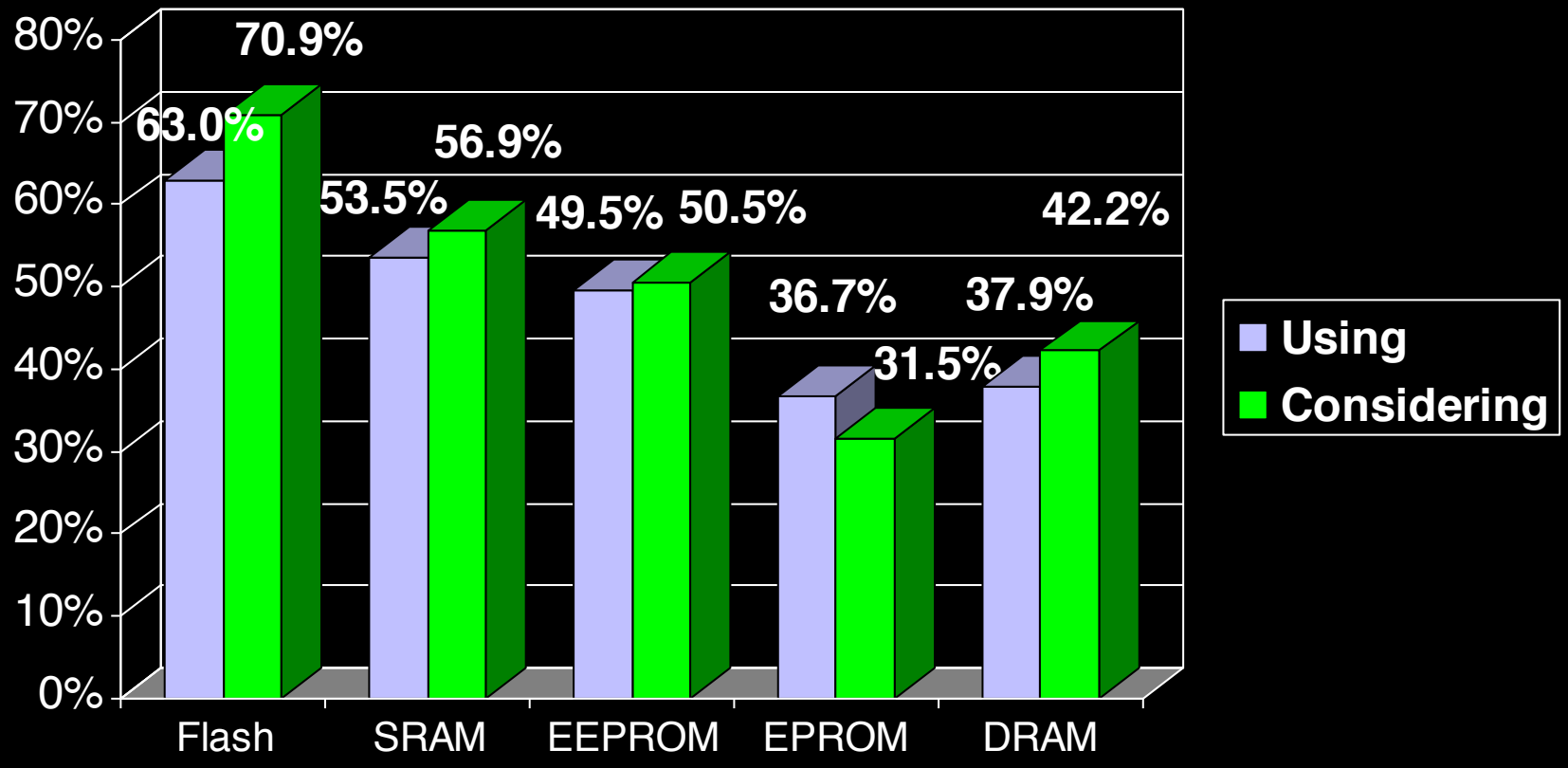
What kinds of ON-CHIP memories are you using or considering for your embedded designs?



Base: 327

1999 *ESP* Subscriber Study

Kinds of stand-alone memory used/considering using in embedded designs



Base: 327

1999 *ESP* Subscriber Study

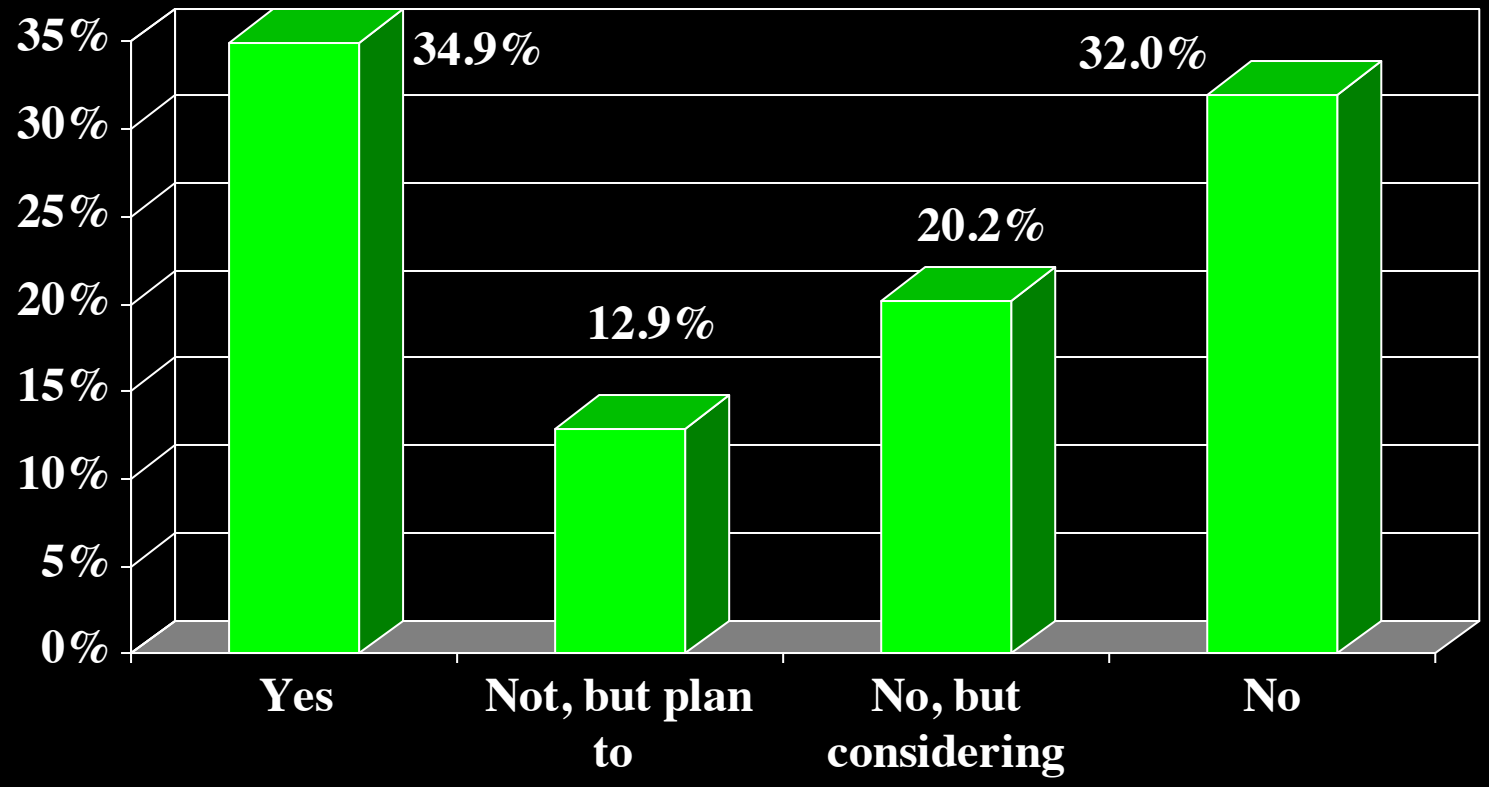
Top 10 flash memory vendors used/ considering using in embedded designs

	Using	Considering
AMD	48.1%	44.8%
Intel	35.4%	32.8%
Atmel	21.8%	25.4%
SanDisk	6.8%	8.2%
Texas Instruments	6.8%	12.1%
Motorola	6.3%	9.5%
Toshiba	5.8%	8.6%
Micron Technology	5.3%	7.3%
M-Systems	3.9%	6.0%
Samsung	3.4%	5.6%

Base: 206 have used
327 considering

1999 *ESP* Subscriber Study

Do you develop embedded systems that are networked or web-enabled?



Base: 410

1999 *ESP* Subscriber Study

Top 10 Software protocols/stacks used/ considering using embedded systems

	Use currently	Considering
TCP/IP	83.9%	78.9%
FTP	37.1%	28.0%
Proprietary	29.4%	18.6%
SNMP	28.0%	17.9%
UDP	27.3%	23.3%
PPP	26.6%	26.5%
ICMP	18.2%	10.8%
X.25	9.1%	9.0%
Token Ring	7.7%	5.4%
IGMP	5.6%	2.9%

Base: 143 use currently

1999 *ESP* Subscriber Studies

Are you designing Web technology/ capability into your embedded systems applications?

Base: 410

1999 *ESP* Subscriber Study

Top 10 software protocols/stacks vendors using/considering using

	Using	Considering
Wind River	30.1%	22.2%
Berkeley Software	8.4%	6.5%
QNX	6.3%	10.4%
Pharlap	5.6%	5.0%
Integrated Systems	5.7%	4.9%
Lynx Real-Time	4.2%	4.7%
Pacific Softworks	3.5%	2.5%
US Software	2.8%	1.8%
RouterWare	2.8%	-
Microware	2.1%	2.5%

Base: 143 using
279 considering

1999 *ESP* Subscriber Study

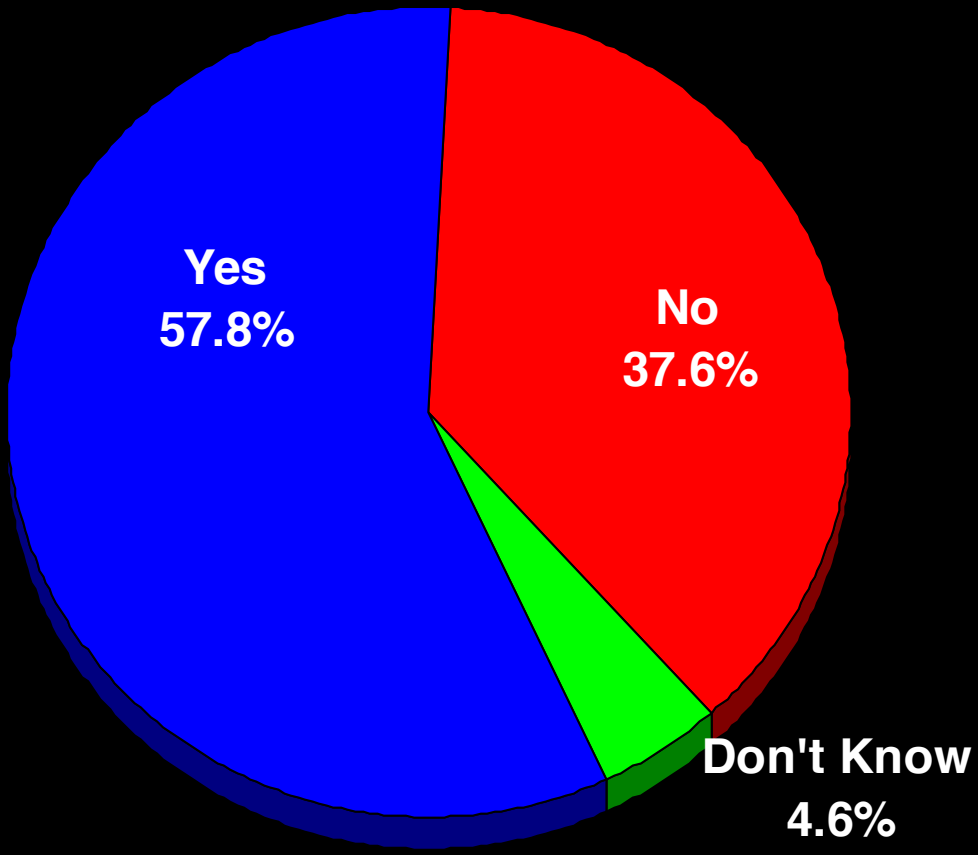
Top 10 vendors of Web products/tools used/ considering using

	Using	Considering
Wind River	24.6%	28.6%
PharLap	8.8%	10.3%
QNX	8.8%	14.1%
Caldera	8.8%	9.9%
IBM	5.3%	9.4%
emWare	5.3%	6.6%
Agranat	3.5%	1.4%
Allegro Software	3.5%	4.2%
Rapid Logic	3.5%	1.9%
Pacific Softworks	3.5%	3.3%

Base: 57 using
213 considering

1999 *ESP* Subscriber Study

In-Circuit Emulator (ICE) use in 1999: used or considering using



Base: 410

1999 *ESP* Subscriber Study

Top ICE features (1999)

Ease of use..... 55.3%

Price..... 44.3%

Hardware breakpoints..... 42.6%

Software included with ICE..... 40.1%

Documentation..... 25.3%

Integration with other tools..... 24.1%

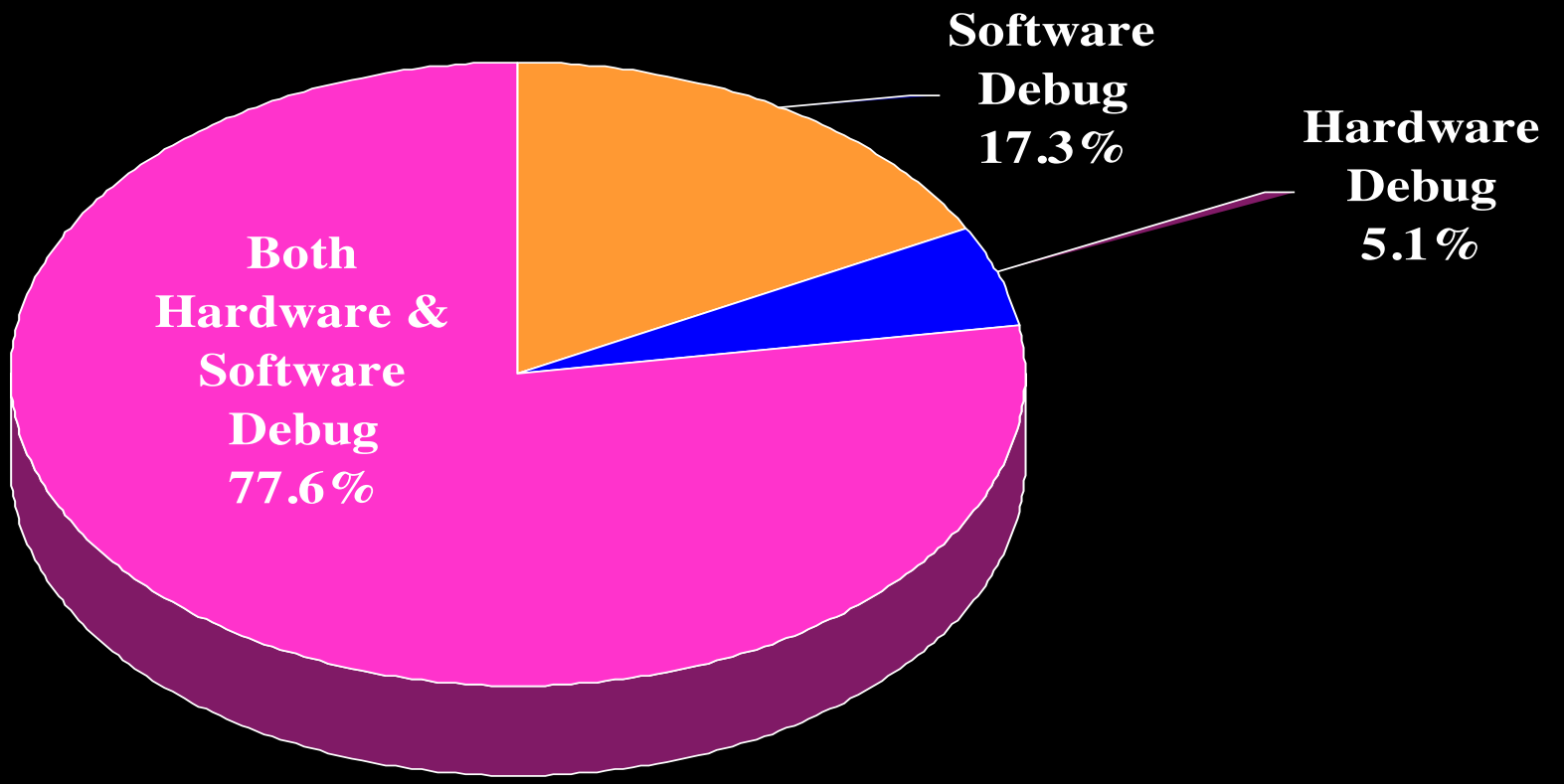
Trace buffer size..... 23.2%

User interface..... 23.2%

Base: 237

1999 *ESP* Subscriber Study

How do you use/plan to use your ICE?



Base: 237

1999 *ESP* Subscriber Study

8-bit ICE usage

	Have Used	Considering
Nohau	34.3%	38.4%
Microchip	17.5%	26.8%
Motorola	14.6%	26.8%
MetaLink	10.9%	14.3%
Huntsville Microsystems	8.0%	14.3%
Texas Instruments	7.3%	13.4%
Microtek International	6.6%	9.8%
TechTools	5.8%	8.9%
Hitex Development Tools	5.1%	10.7%
Grammer Engine	4.4%	4.5%
Ceibo	3.6%	7.1%
Ashling	3.6%	6.2%
Avocet	3.6%	16.1%
HiTech Equipment	3.6%	8.0%

Base: 137, used
112, considering

1999 *ESP* Subscriber Study

16-bit and 32-bit ICE usage

	Have Used	Considering
Hewlett-Packard	18.0%	29.8%
Applied Microsystems	17.0%	21.4%
Nohau	14.5%	27.9%
Motorola	11.0%	22.3%
EST	10.5%	10.7%
Huntsville Microsystems (HMI)	5.5%	10.7%
Microtek International	4.5%	13.0%
Hitex Development Tools	4.5%	7.0%
Hitachi	4.5%	7.0%
American Arium	3.5%	6.0%
Orion	3.0%	5.1%
Softools	2.0%	3.3%
Lauterbach	1.5%	5.1%
Pentica Systems	1.5%	1.4%
Ceibo	1.5%	1.4%

Base:200 have used
215 considering

1999 *ESP* Subscriber Study

Have you used or considered using a logic analyzer for your embedded designs?

YES..... 58.5%

NO..... 36.3%

DON'T KNOW..... 5.1%

Base: 410

1999 *ESP* Subscriber Study

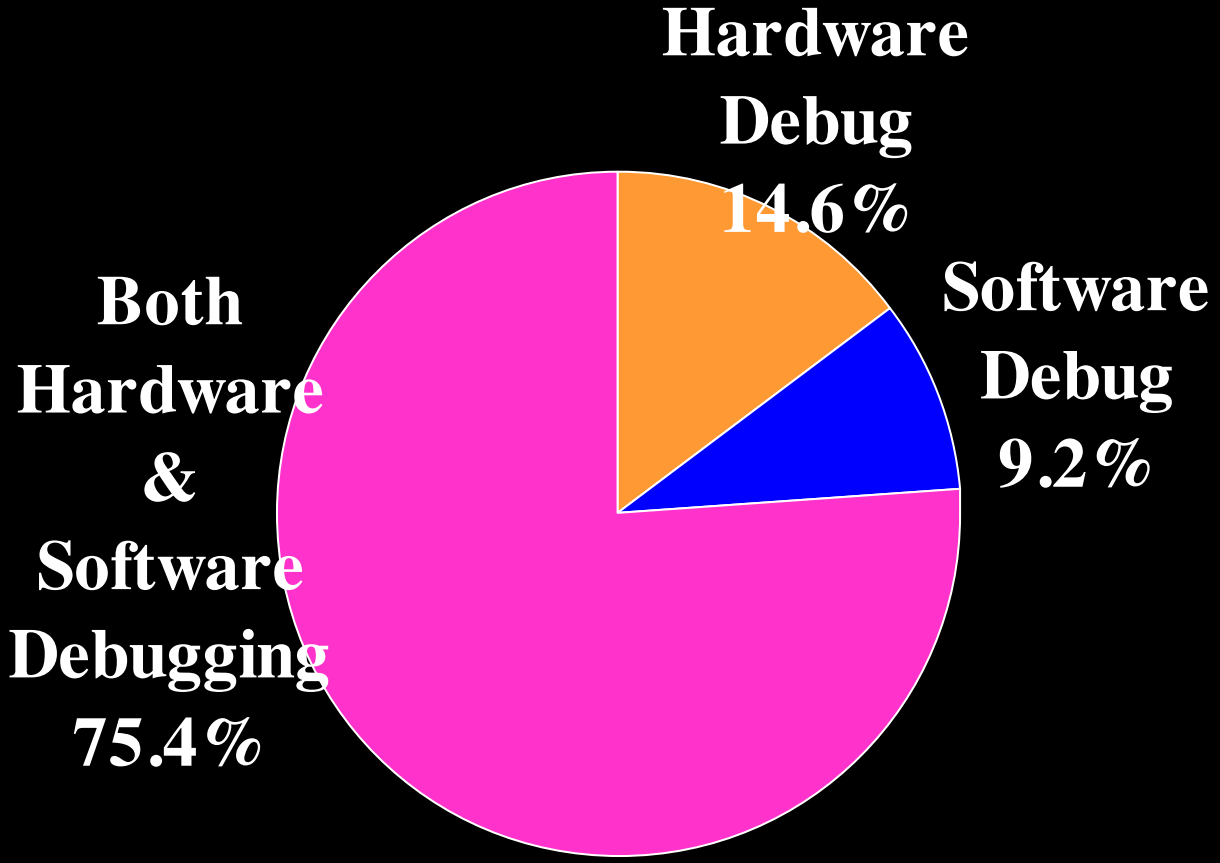
Important Attributes in Selecting Logic Analyzers

Triggering	48.8%
Number of Channels	45.0%
Acquisition Memory	43.8%
User Interface	32.5%
Price	30.4%
Speed	22.1%
Connection to Source Level Debugger	18.3%
Company Reputation	13.3%
Software Performance Analysis/ Ties to Emulation	11.7%
Documentation	10.4%
Prior Experience	9.6%
Support/Training	6.7%

Base: 240

1999 *ESP* Subscriber Study

How do you use/plan to use a logic analyzer?



Base: 240

1999 *ESP* Subscriber Study

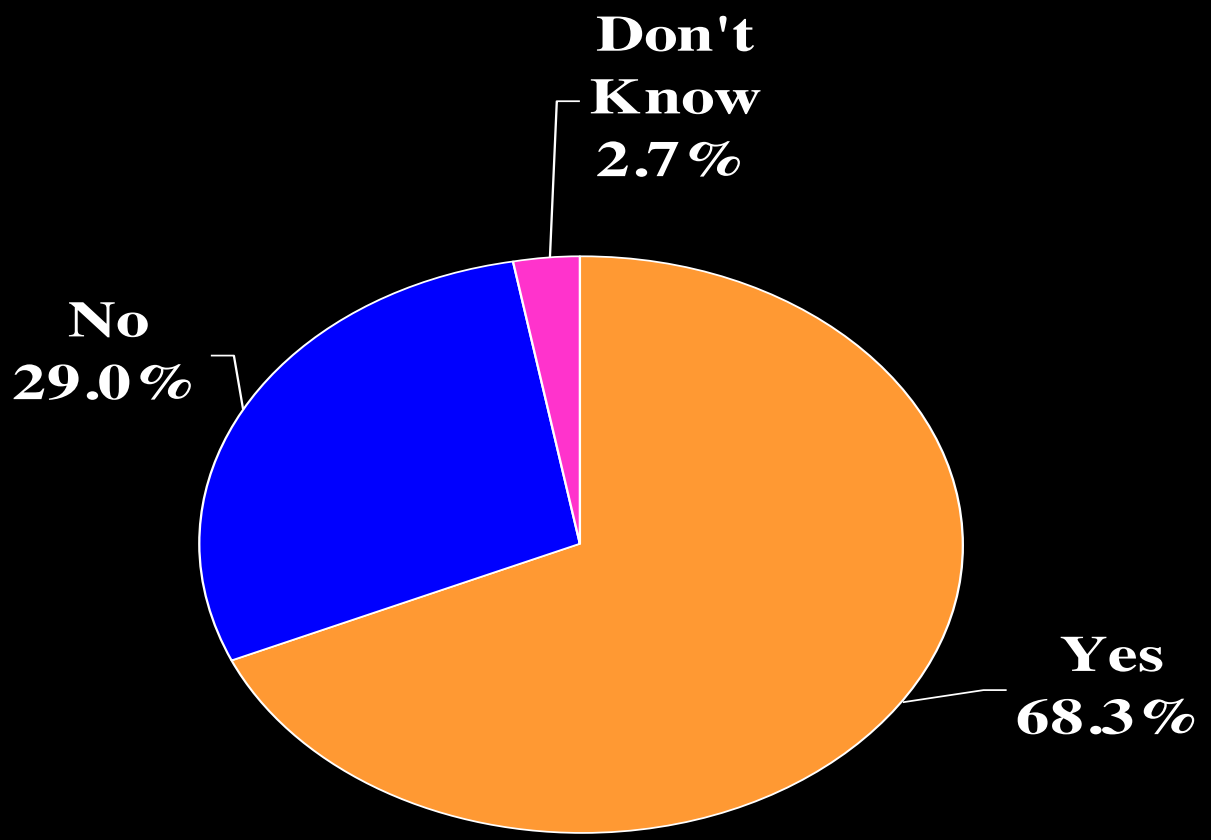
Which logic analyzer vendors have you used or are considering using for your embedded designs?

	Have Used	Considering
Hewlett Packard	74.6%	77.5%
Tektronix	44.6%	62.1%
Fluke	6.2%	–
Advanced Micro Computer Sys	2.1%	6.7%
Digital Logic Instruments	1.7%	2.5%
Boulder Creek	1.2%	2.1%
Logical Devices	0.8%	5.4%
American Arium	0.8%	2.9%
Yokogawa Digital Corp	0.4%	1.2%

Base: 240

1999 *ESP* Subscriber Study

Have you used or are planning to use an oscilloscope for your embedded designs?



Base: 410

1999 *ESP* Subscriber Study

For which of the following activities do you use/plan to use an oscilloscope?

Hardware Debug	28.9%
Software Debug	4.3%
Hardware & Software Debug	66.8%

Base: 280

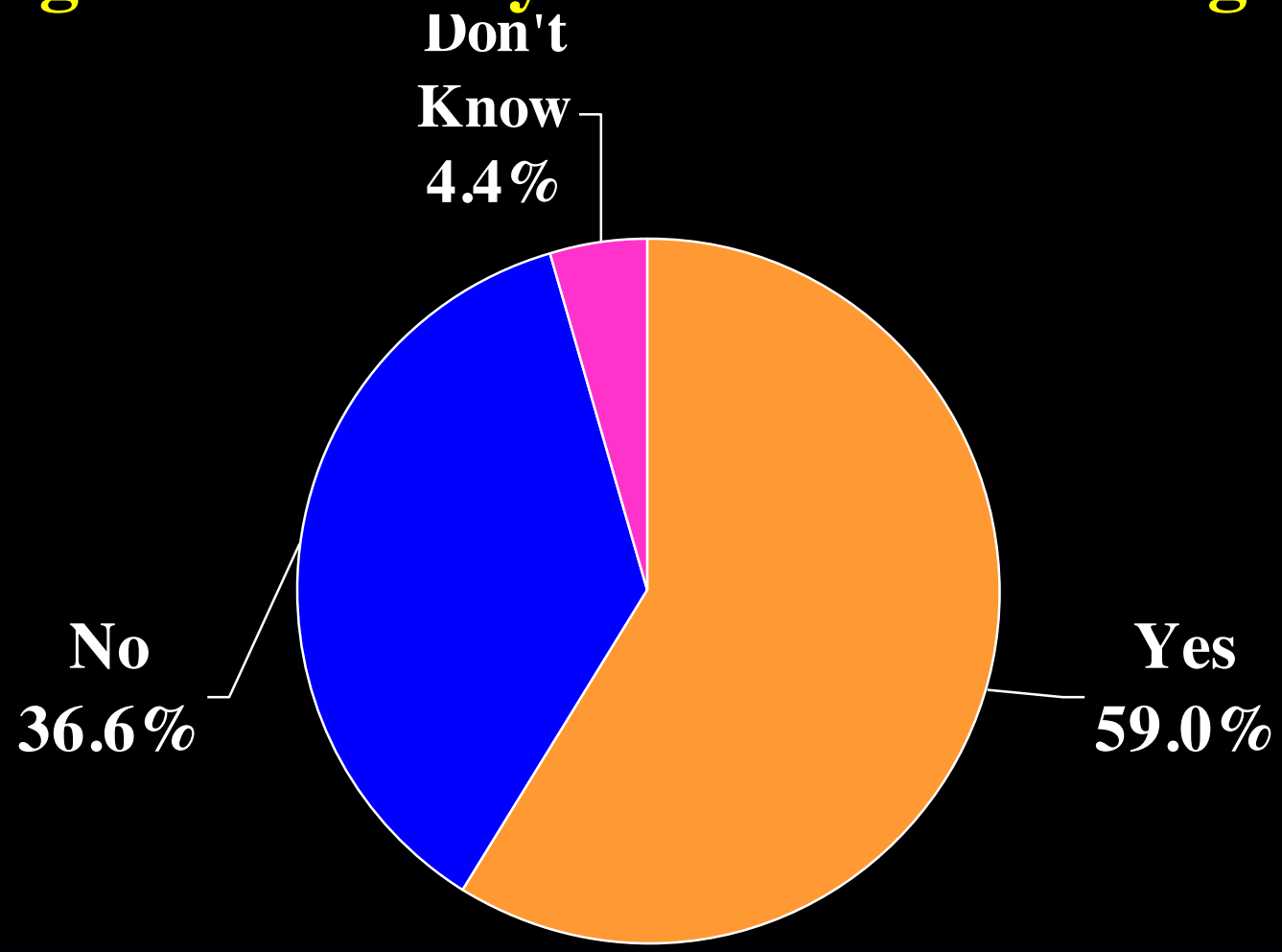
1999 *ESP* Subscriber Study

Top oscilloscope vendors you have used or would consider for your embedded designs?

	Have Used	Considering
Tektronix	85.0%	79.6%
Hewlett-Packard	44.6%	64.3%
LeCroy	11.1%	18.9%
Fluke	10.4%	24.6%
B+K Precision	4.6%	7.5%
National Instruments	2.1%	8.2%
Gould Instrument Systems	1.4%	5.7%
Yokogawa	1.4%	3.6%
Analogic	-	1.1%

Base: 280

Have you used or are considering using a device programmer for your embedded designs?



Base: 410

1999 *ESP* Subscriber Study

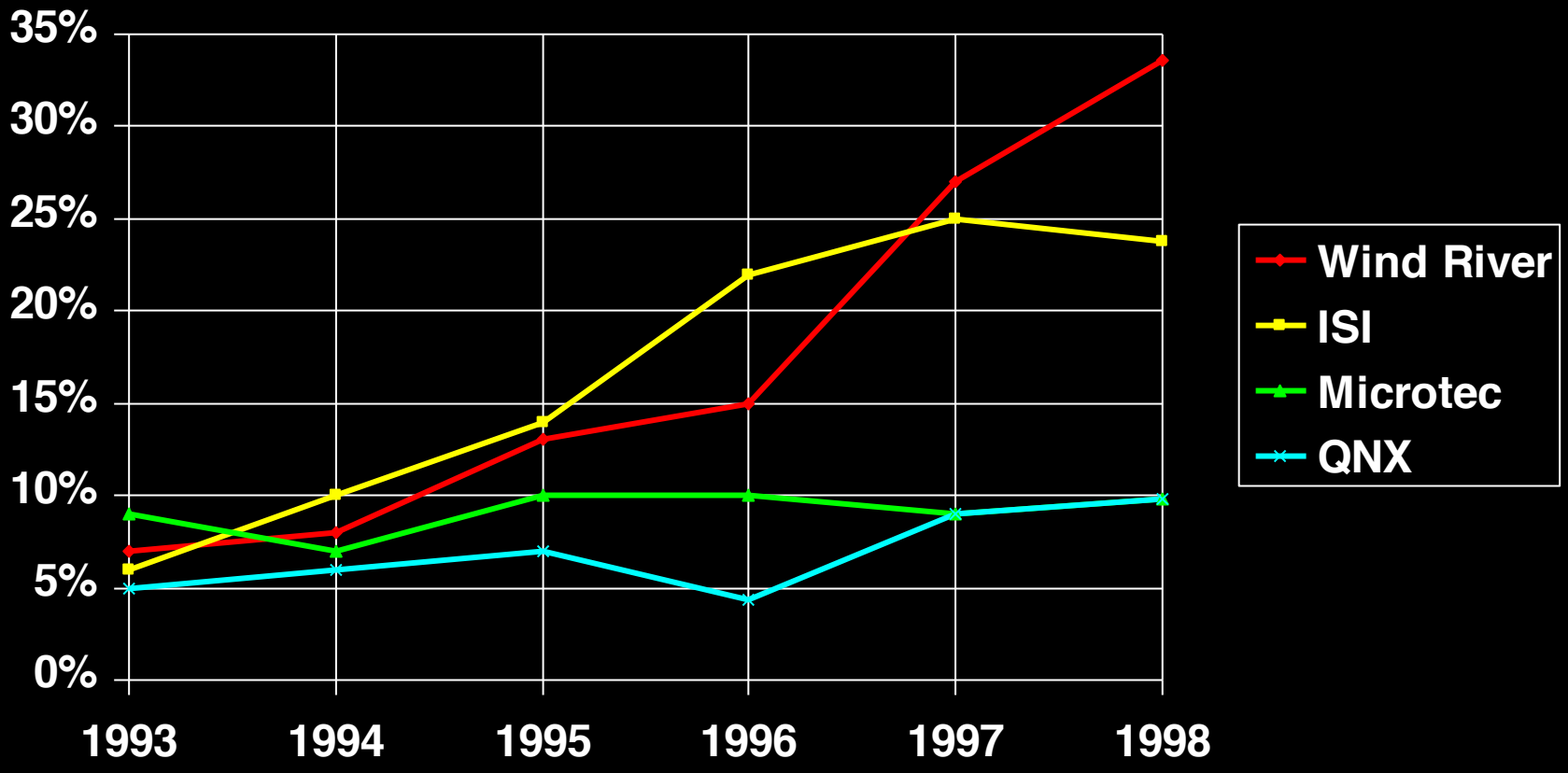
Top 10 Device programmer vendors have used/ considering using

	Have used	Considering
Data I/O	38.0%	45.5%
Needham's Electronics	21.1%	19.8%
BP Microsystems	15.7%	19.0%
Microchip	12.4%	14.0%
Logical Devices	6.2%	9.9%
Xeltex	6.2%	5.4%
Advin Systems	5.8%	6.2%
Parallax	5.4%	7.0%
Dataman Programmers	4.1%	7.4%
EE Tools	2.9%	3.3%

Base: 242

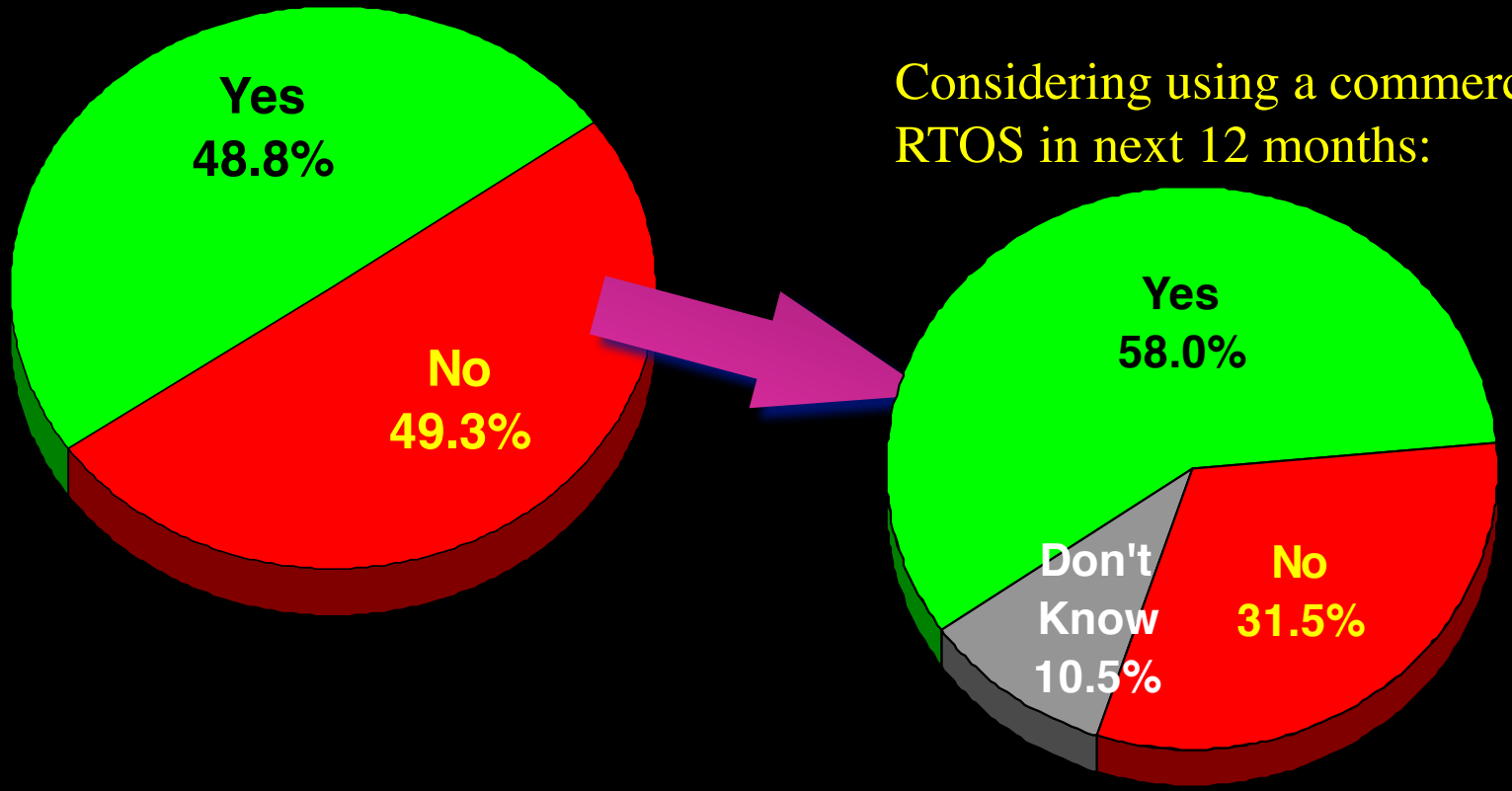
1999 *ESP* Subscriber Study

RTOS Marketshare history



1993 – 1998 *ESP* Subscriber Studie

In the past 12 months, have you used a commercial off-the-shelf real-time operating system (RTOS), kernel, or executive for your embedded designs?



Base:410

1999 *ESP* Subscriber Study

What is your primary reason for NOT using a commercial off-the-shelf real-time operating system (RTOS), kernel, or executive?

- Already using proprietary OS 19.3%
- Not a multitasking application 14.4%
- Cost – royalties 6.9%
- Code size 5.9%
- Investment in legacy code or OS 5.0%
- Cost – one time 4.0%
- Execution Speed 4.0%
- Overhead 3.5%

Base: 202

1999 *ESP* Subscriber Study

What THREE items below are most important to you in selecting a RTOS/kernel?

Speed/performance	36.8%
Code size	34.5%
Price	31.0%
Integration with other tools	31.0%
Documentation	23.6%
Ease of use	21.7%
Company Reputation	19.8%
Part of IDE	15.5%
Scaleability	15.1%
Standard API	14.3%

Base:258

8-bit RTOS Vendor Marketshare

RTX (Keil)	11.6%
Nucleus (Accelerated Tech)	4.3%
VMEexec (Motorola)	4.3%
Byte-BOS (Byte-BOS)	2.9%
RTXC (Embedded Systems Products)	2.9%
SuperTask! (US Software)	2.9%
pF/x (Forth, Inc.)	2.9%

Base: 69

1999 *ESP* Subscriber Study

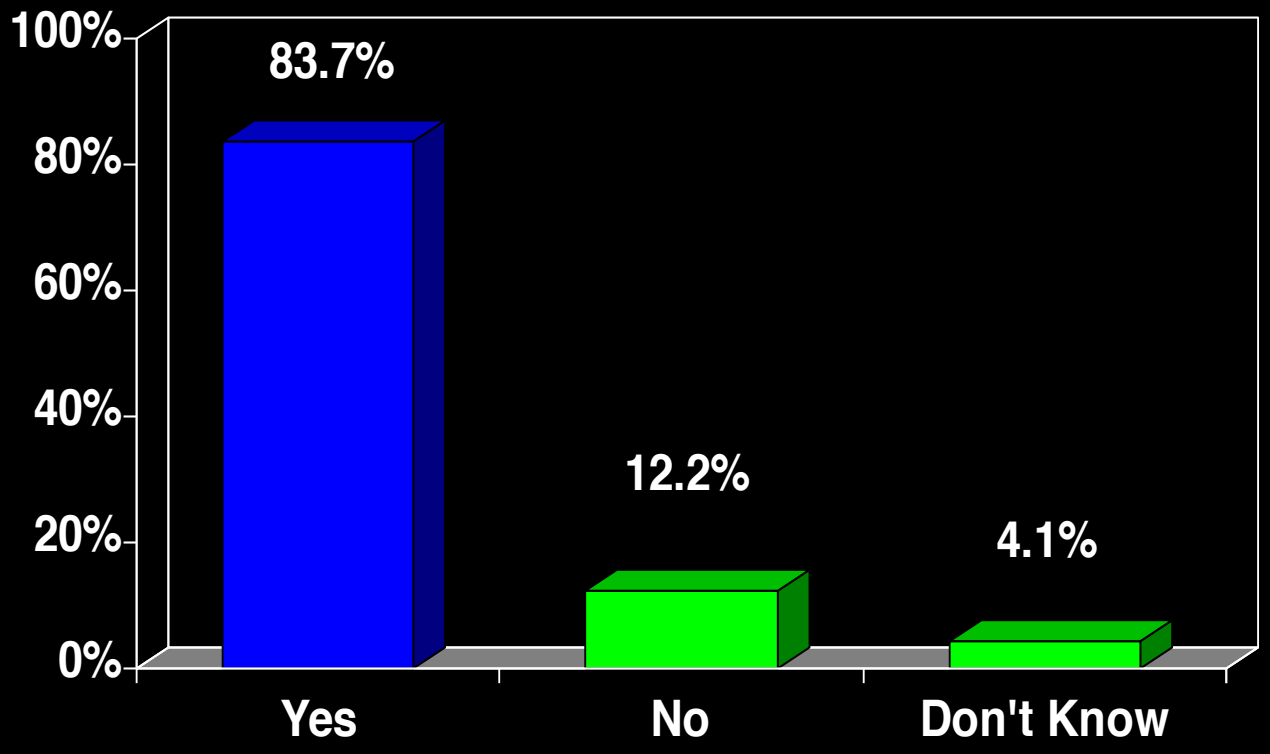
16 & 32-bit RTOS Vendor Marketshare

VxWorks (Wind River)	44.7%
PSOSystem (ISI)	17.4%
Windows NT (Microsoft)	13.7%
LynxOS (Lynx)	11.6%
QNX (QNX Software)	10.5%
VRTX (Mentor Graphics)	10.0%
Windows CE (Microsoft)	8.4%
OS-9 (Microware Systems)	5.8%
Nucleus (Accelerated)	5.3%
RTXC (Embedded Sys Products)	4.7%
TNT (Pharlap)	4.2%

Base:190

1999 *ESP* Subscriber Study

Have used/considering using cross compiler for embedded designs



Base: 410

1999 *ESP* Subscriber Study

Top Ten cross-compiler features

	1997	1998	1999
Code size	38.7%	40.0%	34.7%
Speed/optimization	41.9%	44.7%	33.8%
Platform supported	54.6%	27.8%	32.7%
Price	28.9%	27.5%	24.8%
Integration with other tools	41.9%	34.9%	23.3%
Integrated dev. environment (IDE)			21.3%
Past use	12.7%	14.1%	20.1%
Documentation	30.6%	29.0%	20.1%
Libraries Provided			19.2%
Company reputation	23.2%	15.7%	

Base: 343 1997, 1998 & 1999 *ESP* Subscriber Studies

Top Ten 8-bit & 16-bit Cross-Compiler Marketshare

	Have Used	Considering
Microchip	16.6%	19.4%
Keil	16.6%	20.9%
IAR Systems Software	11.5%	17.5%
Franklin	10.2%	12.3%
Archimedes	9.8%	15.6%
Tasking	8.1%	11.4%
HI-TECH Software	7.2%	10.9%
Byte Craft	7.2%	5.2%
Cosmic	6.4%	7.1%
Avocet/2500 AD	5.1%	10.4%

***22.1% use their chip vendor's cross compiler**

Base: 235 have used
211 considering

1999 *ESP* Subscriber Studies

Top Ten 32-bit Cross-Compiler Marketshare

	Have Used	Considering
Wind River	23.7%	32.8%
Microsoft (for Windows CE)	16.8%	12.3%
Diab Data	11.0%	13.1%
Cygnus Solutions	10.5%	10.1%
Green Hills	10.5%	20.5%
Mentor Graphics (Microtec)	10.1%	7.8%
Motorola	7.8%	15.3%
Metrowerks	6.8%	13.1%
Rational	5.9%	9.7%
Software Development Systems	5.9%	7.5%

Base: 235 have used
211 considering

1999 *ESP* Subscriber Studies

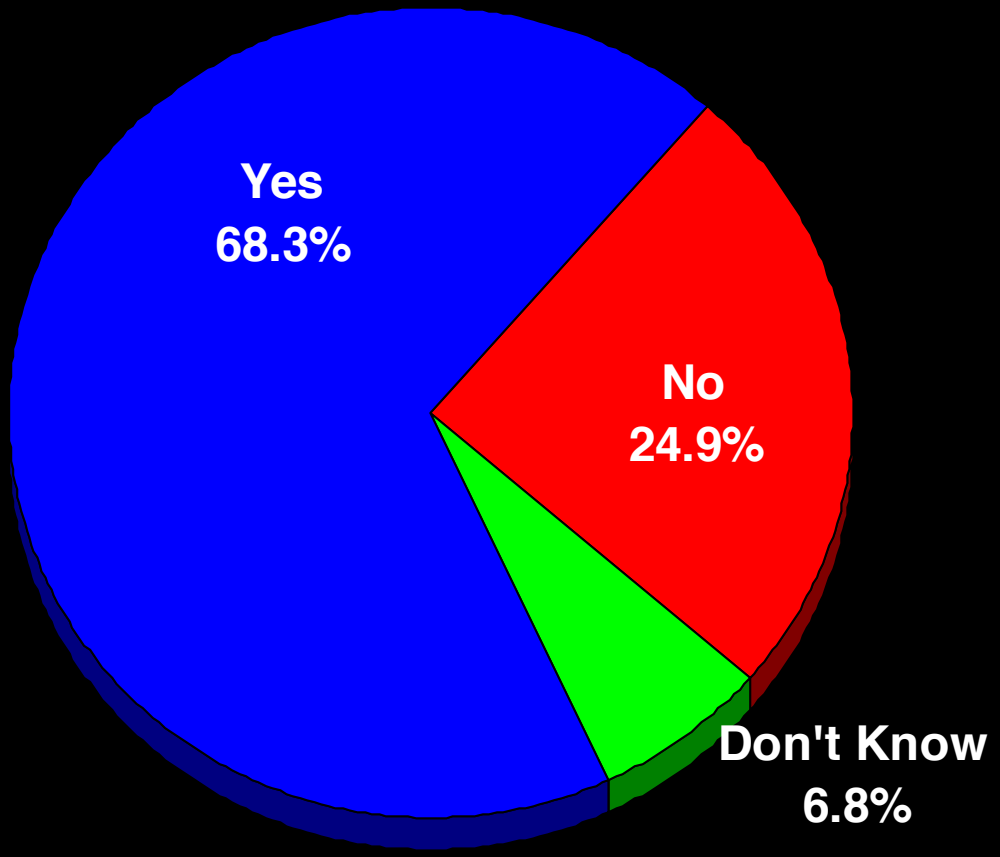
***19.6% use their chip vendors cross compiler**

32-bit Cross-Compiler usage

	1997	1998	1999
Wind River	10%	12%	23%
Microsoft (CE)	---	8%	12%
Diab Data	4%	8%	11%
Cygnus	6%	4%	10%
Green Hills	8%	8%	10%
Chip vendor's	---	5%	9%
Microtec	17%	18%	7%
Motorola	9%	3%	7%
Metrowerks			6%
Rational	4%	3%	5%
SDS	5%	4%	5%
MetaWare	5%	3%	4%

1997, 1998 & 1999 *ESP* Subscriber Studies

Software debugger use in 1999: using or considering



Base:410

1999 *ESP* Subscriber Study

Top software debugger features (1999)

Compilers supported..... 51.4%

Complex breakpointing..... 36.1%

Integrated dev environment (IDE)..... 34.3%

Price/cost..... 31.4%

RTOS awareness..... 28.9%

Real time complex triggering..... 26.4%

Past use/prior experience..... 22.1%

Base:280

1999 *ESP* Subscriber Study

Documentation.....

Debugger usage

	Have Used	Considering	Microsoft	Wind River
	20.4%	17.5%		
	20.4%		31.1%	
Borland	13.9%		14.6%	
SDS (Single Step)	10.0%		12.5%	
Green Hills	8.6%		12.5%	
Mentor Graphics (Microtec)	7.1%		8.2%	
Motorola	7.1%		12.5%	
Hewlett-Packard	6.8%		14.6%	
Cygnus Solutions	6.8%		10.4%	
Phar Lap	6.4%		12.5%	
Keil	5.4%		7.9%	
Paradigm	4.6%		9.6%	
Metrowerks	4.6%		9.6%	

Base:280

1999 *ESP* Subscriber Studies

Have used/considering using a software configuration management or version control tool

YES	57.6%
NO	36.8%
Don't Know	5.6%

Base: 410

Top 10 Software configuration management or version control vendors used/would consider using

	Using	Considering
Microsoft (SourceSafe)	31.8%	34.3%
Rational Software (Clear Case)	20.8%	33.5%
Intersolv	20.3%	18.2%
SCCS/RCS	19.5%	21.2%
MKS	11.9%	19.9%
Proprietary	3.4%	4.2%
Continuous Software	2.5%	5.9%
HP (SoftBench)	1.7%	5.9%
Starbase	1.3%	1.7%
Computer Associates	0.8%	2.5%

Base: 236

1999 *ESP* Subscriber Study

Have you used a single board computer for your embedded designs in the last 12 months, or are you planning or considering using one for your embedded designs in the next 12 months?

YES	38.3%
NO	59.8%
Don't Know	2.0%

Base:410

1999 *ESP* Subscriber Study

Which FOUR items below are most important to you in your selection of a single board computer?

Performance	52.2%
Software & Development Tools Support	52.2%
Available I/O	51.0%
Price	49.0%
Processor on board	43.9%
Documentation	26.1%
Company reputation	23.6%
Size/Footprint	21.7%
Compatibility w/ previous designs	21.7%
Ruggedness	19.1%
Delivery/Availability	18.5%
Mil Spec	5.7%

Base:157

1999 *ESP* Subscriber Study

SBC on-board functions used/considering

	Have Used	Considering
Multiple serial ports	51.0%	58.6%
Analog/digital	45.9%	53.5%
Flash	43.9%	52.2%
Ethernet 10 BaseT	42.0%	44.6%
Communications	41.4%	50.3%
Parallel	28.7%	37.6%
Single serial port	27.4%	18.5%
Video	22.5%	33.8%
Ethernet 100 BaseT	24.2%	42.0%
Mass Storage	21.7%	26.8%
Graphics	18.5%	29.3%
DSP	17.2%	28.0%
SCSI 2	10.8%	18.5%
SCSI 1	8.9%	8.3%

Base:157

1999 *ESP* Subscriber Study

Which of the following backplane bus standards have used in the last 12 months or are considering using in the next 12 months?

	Have Used	Considering
PCI	40.1%	59.9%
VME	33.8%	36.3%
ISA	33.1%	30.6%
cPCI	10.8%	25.5%
EISA	5.1%	7.0%
STD	4.5%	8.3%
VXI	3.2%	5.1%
Multibus I/II	1.3%	4.5%

Base:157

1999 *ESP* Subscriber Study

Non-backplane bus standards used/considering using

	Have Used	Considering
PCI	28.0%	40.1%
PC/104	24.8%	29.9%
Motherboard	17.2%	16.6%
USB	13.4%	42.7%
PC/104+	9.6%	20.4%
IEEE 1394 (Firewire)	8.9%	30.6%

Base:157

1999 *ESP* Subscriber Study

What compact PCI (cPCI) board vendors have you used or would consider using for your embedded designs?

	Have Used	Considering
Motorola	47.1%	57.5%
Ziatech	23.5%	25.0%
Force	17.6%	27.5%
VMIC	11.8%	7.5%
Radisys	5.9%	25.0%
SBS	5.9%	15.0%
Sun	5.9%	15.0%
Gespac	5.9%	2.5%
PEP Modular	5.9%	10.0%
National Instruments	–	20.0%
Texas Micro	–	10.0%

Base: 17 have used
40 considering

1999 *ESP* Subscriber Study

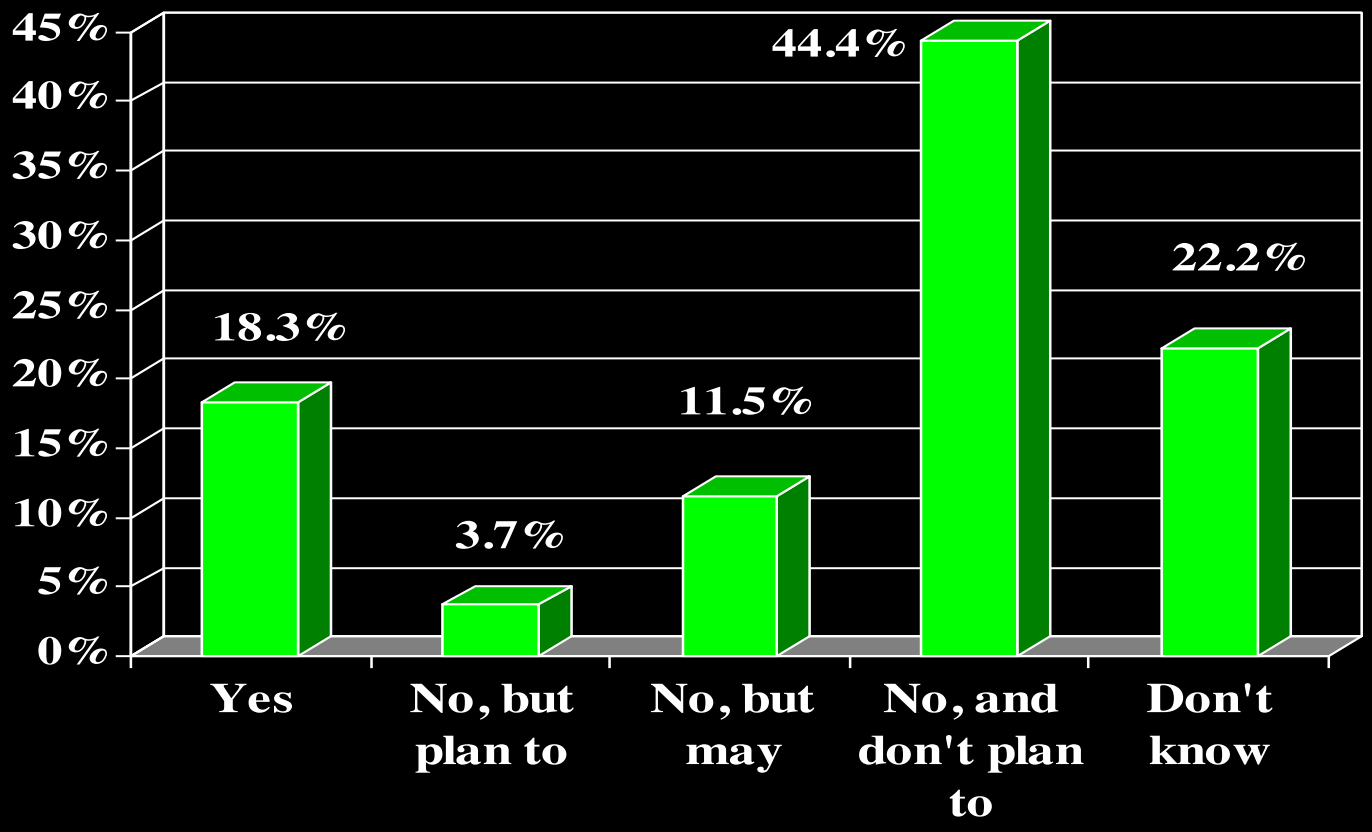
VME board vendors used/would consider using

	Have Used	Considering
Motorola Computer Grp	59.6%	54.7%
Force	28.3%	31.6%
VMIC	18.9%	17.5%
Radstone	15.1%	21.1%
SBS	15.1%	21.1%
Radisys	15.1%	19.3%
Xycom	13.2%	14.0%
Mercury Computer Sys	21.1%	11.3%
Themis	9.4%	10.5%
Artesyn(Heurikon)	9.4%	10.5%
DY-4	9.4%	19.3%
Rockwell Automation	5.7%	10.5%
Synergy	3.8%	10.5%

Base: 53, have used
57, considering

1999 *VSP* Subscriber Stud

Is your company currently designing embedded systems using Intellectual Property (IP)?



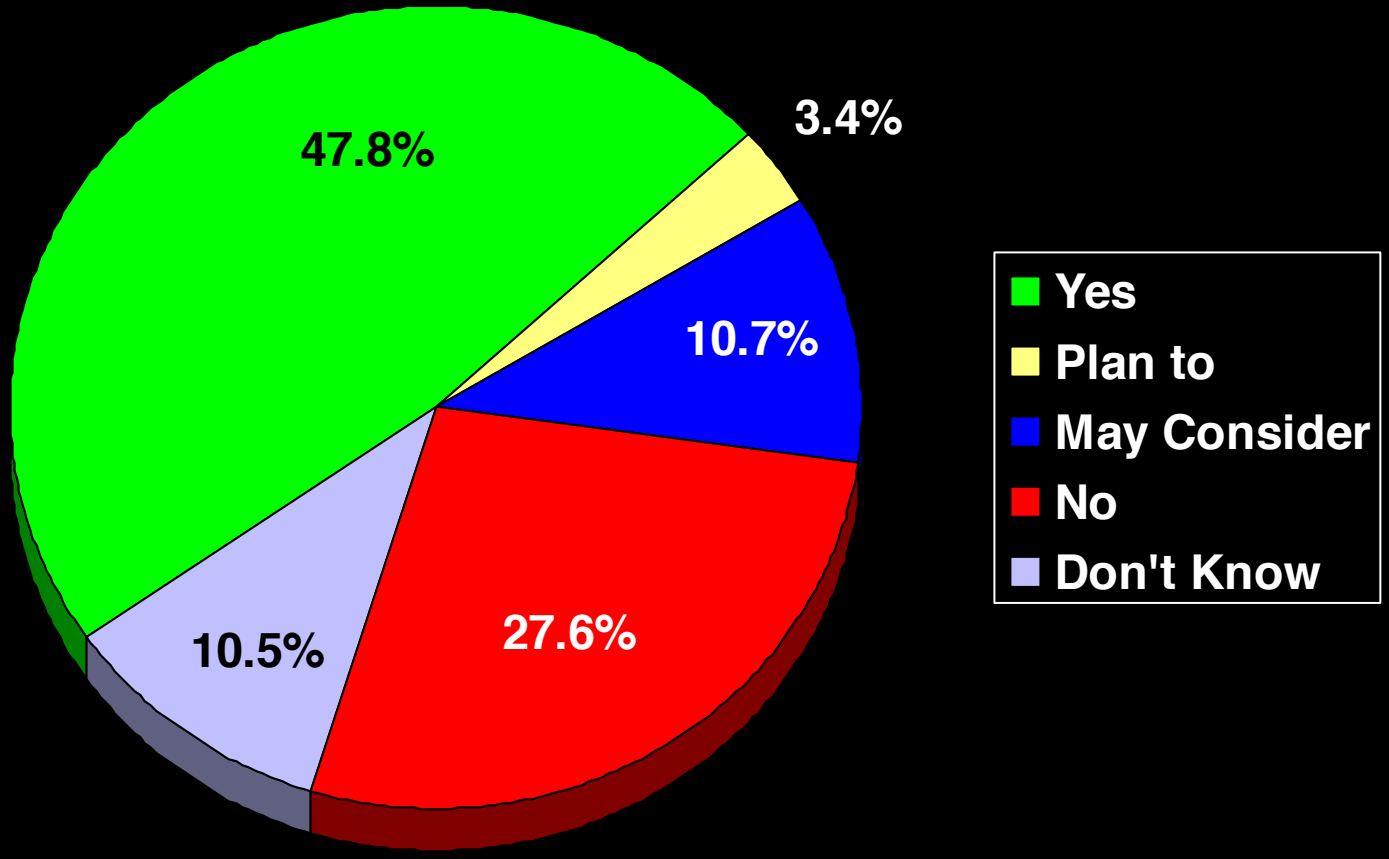
Base 410

1999 *ESP* Subscriber Study

Types of IP used for embedded designs

- 32-bit processor core 62.7%
- 8-bit processor core 22.7%
- 16-bit processor core 16.0%
- 64-bit processor core 5.3%
- Other complex functions
  - (PCI, MPEG, etc.) 25.3%

Is your company designing embedded systems using programmable logic (FPGAs/CPLDs)?



Base: 410

1999 *ESP* Subscriber Study

Which FPGA/CPLD vendors have you used or would you consider for your embedded designs?

	Have Used	Considering
Xilinx	54.6%	42.9%
Altera	39.3%	33.5%
Actel	15.3%	11.8%
Atmel	14.8%	13.4%
Lattice (Vantis)	14.3%	13.8%
Cypress	13.3%	14.2%
Lucent	5.6%	8.7%
Microchip	4.1%	6.3%
Philips	3.1%	4.3%
Waferscale	2.6%	3.1%

Base: 196 Have Used
254, considering

1999 *ESP* Subscriber Study

What are your three favorite debug tools for embedded development?

- Software debugger 71.7%
- In-Circuit Emulator 59.8%
- Logic Analyzer 45.4%
- Oscilloscope 35.1%
- Simulation/modeling tools 33.7%
- ROM Emulator 13.7%
- Coverification/codesign tools 7.6%

Base: 410

1999 *ESP* Subscriber Study

HW/SW co-design or coverification tool vendors used/would consider using

	Using	Conside
Cadence (Alta Group)	7.8%	11.0%
Mentor Graphics	7.3%	9.5%
Synopsis (Eagle Design)	5.1%	9.8%
SES	0.7%	1.5%
Summit Design (Simulation Tech)	0.7%	2.4%
CPU Technology	0.7%	2.0%
CARDtools	0.2%	0.5%
Gaio	0.2%	0.7%