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# Appendix A

## Index

# Index

- 50-On Sequence, 142
- abstarct, 0
- Address format, 136
- Amikake, 134
- ANSI C, 170
- ASCII, 60
- Asianization, 184
- Aufgabenstellung, 1
- AX, 167
- BMP, 183
- Business etiquette, 53
- Byte oriented, 88
- Calendar, 106
- Character oriented, 88
- Cho, 101
- Clean programs, 163, 167
- Collating Sequence, 142
- Consensus, 54
- Conversion, 115
- CSP, 169
- Currency, 101
- Custom build Software, 55
- Customized Software, 19
- Dakuon, 134
- DBCS, 62
- DBCS string handling, 86
- Denotation, 145
- Dirty programs, 163
- DOS/V, 167
- emperor, 105
- En, 102
- ESC/P, 139
- EUC, 169, 171
- EUC representation, 171
- FEP, 115
- Front End Processor, 115
- Furigana, 134
- Gaji, 64
- Gengou, 105
- Globalization, 185
- Gogo, 108
- Gozen, 108
- Gregorgian calendar, 104
- Handakuon, 134
- Hankaku, 60, 133
- Hardware, 138
- Hepburn, 58
- Hiragana, 58
- HP-UX, 172
- Hyaku, 101
- I-RO-HA, 142
- IBM PC, 17, 141

- Internationalization, 185
- Japanese business style, 53
- Japanese Data-type, 143
- Japanese features, 164
- Japanese Hardware, 16
- Japanese Input Manager, 119
- Japanese language, 12
- Japanese language problems, 56
- Japanese market, 14
- Japanese software style, 19
- Japanese writing style, 130
- Japanization, 163
- japanization, 12
- Japanization requirements, 56
- JIM, 119
- JIS X 0208, 143
- JIS X 0212, 143
- JIS X0201, 59
- JIS X0208, 60
- JIS X0212, 61
- Joyo Kanji table, 61
- Ju, 101
- Jukugo Kanji conversion, 118
- Kanji, 58
- Kanji dictionary, 118
- Kanji In / Out, 62
- Kansuji, 101, 102, 133
- Katakana, 58
- Keisen, 133
- keywords, 0
- Kinsoku Shori, 133
- Kinto-waritsuke, 135
- Kun-yomi, 142
- LANG, 170
- Laptop, 17
- Locale, 170
- Localization features, 170
- Lotus 123j, 145, 167
- Man, 101
- Meishi, 54
- Message catalog, 173
- Mixed string, 86
- MNLS, 169
- MS-DOS, 166
- MS-Windows, 168
- Multi-byte, 172
- National profile, 170
- NEC PC-98XX, 17, 141
- Nengou, 105
- Nipponsiki, 58
- NLIO, 174
- NLS, 172
- Notebook, 17
- Number, 101
- OADG, 167
- Oku, 101
- On-yomi, 142
- Package Software, 20
- Page order, 130
- Paper size, 138
- PC/WKS, 14
- PC/WKS market, 16
- Pen computing, 184
- Pitfalls, 144
- Poem, 130

- Quality, 55
- Radical, 143
- Reign, 105
- Renbusetsu Kanji conversion, 118
- Romaji, 58
- Rubi, 134
- SBCS, 62
- SBCS string handling, 86
- Sen, 101, 102
- Service, 55
- Shift In / Out, 62, 87
- Shift JIS, 63, 171
- Single Shift code, 171
- Small Kanas, 134
- Sokuon, 134
- Sort order, 142
- TAD, 182
- Tan Kanji conversion, 117
- Tenno, 105
- Time, 107
- topics covered, 10
- Tron, 182
- Unicode, 182
- Units, 137
- UNIX, 166, 168, 183
- Western writing style, 130
- Wide-character, 171
- World IT market, 15
- Yen, 102
- Yo'on, 134
- Yomi, 58
- Zenkaku, 133

# Appendix B

## Glossary

**ALE** Asian Language Environment

**Amikake** is the gray-shading of characters, used instead of boldface, italics or underlining.

**ANSI** (American National Standard Institute) is the standardization organization of the USA

**ASCII** (American Standard Code for Information Interchange) standard seven bit code character set.

**Back Translation** is to retranslate a document from Japanese to check if the first translation is correct.

**Bushu** is the collating sequence based on the type of strokes which are used to draw the Kanji character.

**Character Set** contains all letters, ideographs, numbers, punctuation symbols, special symbols, etc. which are required to write a language.

**Codeset** is a set of characters which are match to a unique, uniform length binary code.

**Country Specific Parts** is a term used in the AT&T Unix environment and describes the parts of the **MNLS** which are unique for a country, like the **FEP** for Japan.



**CSP** see Country Specific Parts

**DBCS** (Double Byte Character Set) is a set of characters (**codeset**) which is represented by two Bytes (16 Bit).

**DIN** (Deutsche Industrie Norm) is the standardization organization of Germany

**EUC** (Extended Unix Code) a way of mapping different character sets. Allows the use of up to four bytes for the representation of one character. Organized in four code sets. Code set number 0 is for default ASCII.

**En** see **Yen**

**External Codes** are the representation which is used for the input and output of **EUC** mapped character sets.

**FEP** see **Front End Processor**

**Front End Processor** is a program which accepts the user input and react in a certain form. Depending on the mode it passes the character through or converts the entered characters to Hiragana, Katakana or via the Kana Kanji dictionary to Kanji.

**Furigana** see **Rubi**

**Gaiji** are from the user self defined (Kanji) ideographic characters. It is used to display or print non standard (Kanji) characters which are not included in the Japanese Character set standard.

**Gairaigo** see **Loan-word**

**Gengou** see **Nengou**

**Globalization** approach to design software that this software is able to work worldwide in different cultural, language environments.

**Gojuuonjun** (50 on table) is a way of sorting in Japan. This table is used to sort after the pronunciation of the Kanji.

**Hankaku** is mainly used for **Katakana** characters. It is a way to print **Katakana** in the same size as **ASCII** characters instead of printing them in **Zenkaku**.

**Hepburn** way of transliterating between Japanese words and their written representation in **romaji**.

**Hiragana** is a syllable alphabet which is used in Japan to write Japanese Terms and to add grammatical constructions to Kanji characters. Hiragana contains about 83 characters.

**I18N** is the short-cut for **Internationalization**

**IBMSCII** is character set of the IBM PC. Contains, beside the standard ASCII characters, some European character extensions, line elements and special characters.

**Ideograph** is a character which represents a picture, thought or meaning by itself. This ideograph usually does not include any information about the pronunciation or name of the thing described.

**Internal Codes** is the way of storing **EUC** mapped character's sets in memory.

**Internationalization** is to design software which can be adapted to different language environments without major modification.

**I-RO-HA** is a collating (sort) sequence used in Japan.

**ISO** (International Standardization Organization) is an international standardization organization formed by standardization organization (ANSI, JIS, DIN, BSI, ...) from different countries.

**ISO 10646** see **Unicode**

**JAÉ** see **Japanese Application Environment**

**Japanese Application Environment** is a term used to describe a UNIX environment which works with **EUC** mapped character sets.

**Japanese Input Manager** is the combination of **FEP** and Kana Kanji dictionary, realized in different ways (e.g., as a part of the keyboard driver or as a separate process)

**JIM** see Japanese Input Manager

**JIS** (Japan Industrie Standard) is the Japanese body for standardization.

**JIS Code** is a industrie standard **codeset** defined from **JIS**. Some examples are JIS X0208 or JIS X0212. JIS X0208 Level 1 contains 2.965 Kanji characters and Level 2 contains 3.388 Kanji character's.

**Jukugo (Kanji Compound) Conversion** is the way of entering Kanji character's compounds by their Kana spelling. So that it is possible to enter Kanji compounds which consist more than one Kanji character.

**Kana-Kanji Conversion** is the conversation from **Kana** (or **Romaji**) alphabet to Kanji ideographs. The input is converted via a dictionary to a Kanji which has the pronunciation of the input.

**Kana** is a short cut for the **Hiragana** and **Katakana** syllable character sets.

**Kango** are words derived from Chinese.

**Kanji** characters are **ideographs**. A Kanji represents a meaning, idea or thought but not the pronunciation.

**Kanji Dictionary** is the dictionary which is used to convert the Kana or Romaji input of the user to Kanji characters.

**Katakana** is a syllable alphabet which is used in Japan to write foreign words, denominations or loan-words. Katakana contains 86 characters.

**Keisen** are lines, boxes or borders which the Japanese draw around table, lists and reports.

**Kinsoku** is a type of word wrapping which prevents that certain characters appear at the beginning or end of a printed line (line head and line end kinsoku processing).

**Kintou-Waritsuke** is a form of formatting Japanese text between two points, e.g., the begin and end of a line.

**Kun Reading** is the way of the Japanese pronunciation of a Kanji.

**Kunrei-Shiki** see **Hebrun**, different method

**Kuten Code** is a code which is used to enter Japanese Kanji characters. Usually the Kanji characters are listed in a table with, e.g., their Kuten code.

**LANG** is the UNIX language environment variable which contains the information in which language environment a program is running. It is used to determine which cultural specific differences have to be considered.

**Loan-word** is a word from a foreign language which is adapted and frequently used in Japan. An example is software which has become the loan-word, e.g., *sofuto uēā*

**Locale** is a set of locale definitions which are apply for a locale environment. Usually the locale in a UNIX system is selected by an environment variable called LANG.

**Localization** is the process of adapting a software product to a national, ethnic, language environment. It could contain changes of date & time formats, . . . .

**MNLS** (Multi National Language Support) is way which vendors have chosen to support different national, cultural and language environments.

**Multibyte Character** is a way of representing characters with more then one byte. An example for multi-byte character sets are **EUC** or JIS X0212.

**Nengou** is the Japanese calendar which is based on the reign of the emperor (tenno).

**Nippon-siki** see **Hepburn**, different method

**NLS** see **MNLS**

**On Reading** is the way of the Chinese to pronounce a Kanji character.

**Radical** is a set of 214 basic Kanji characters which are used to build more complex characters.

**Regionalization** is to adapt a software to special requirements of a region (like enabling DBCS in Asia)

**Renbunsetsu (Phrase) Conversion** is to convert the input of whole phrases (containing Kanji and Kanas) in one step.

**Romaji** is the Japanese name for the standard western alphabet. In the JIS standard code-set it is equal to the **ASCII** codeset.

**Rubi** are little characters which are used to give the reader the pronunciation of a not so frequently used **Kanji**.

**SBCS** (Single Byte Character Set) is a codeset which is based on one byte, e.g., **ASCII** or **IBMSCII**.

**Shift JIS** is a derivation of the standard JIS codeset. The positions of the characters are moved to an other location in the two byte matrices.

**Sokaku** is the sorting order based on the numbers of strokes which are used to draw the Kanji character.

**Tan Kanji (Single Kanji) Conversion** is an old method of entering Kanji characters. After entering the Kana spelling for one Kanji this spelling will be converted, so that it is possible to enter Kanji character's one by one.

**To Reading** ???

**Unicode** is a proposal for a codeset standard which contains all character's/code sets which are needed worldwide (is equal to ISO10646).

**Vertical Writing** is a heavily used writing system in Japan. The text is written from the right side of a page to the left side and from the top of a page to their bottom.

**Wago** are original (native) Japanese terms which where in use before the introduction of **Kanji** characters from China.

**Wide Character** is an, in **ANSI C** declared data-type for the use with **Multibyte** character code sets.

**YEN** is the name of the Japanese currency (in Japan also called EN). 1 YEN is 100 SEN but this is mainly used for banking purposes.

**Yomi** is the pronunciation of Japanese Kanji characters and words.

**Zenkaku** characters have the doubled width of, e.g., ASCII characters. All Hiragana and Kanji are printed in the Zenkaku size.

# Appendix C

## Character Sets

On the next couple of pages you will find some examples for the coding of JIS code, EUC and Shift JIS. The examples show only a short part of these character sets. The first row gives us the character code in Hex.

JIS-CODIERUNG

21 20:	、 。 , . . . : ; ? ! * . ' \ \ "
21 30:	^ ~ _ ` ~ ` ~ ` ~ ` 全々メ〇ー— - /
21 40:	\ ~      ... " " ( ) [ ]
21 50:	{ } < > [ ] [ ] [ ] + - ± ×
21 60:	÷ = ≠ < > ≤ ≥ ∞ ∴ ♂ ♀ ° ' " ° ℄ ¥
21 70:	\$ ¢ £ % # & * @ § ☆ ★ ○ ● ◎ ◇
22 20:	◆ □ ■ △ ▲ ▽ ▼ ※ 〒 → ← ↑ ↓ =
22 30:	ε ∃ ⊆ ⊇ ⊃ ⊂
22 40:	U ∩ ∧ ∨ ¬ ⇒ ⇔ ∨
22 50:	∃ ∠ ⊥ ^ ∂
22 60:	∇ ≡ ≐ ≪ ≫ √ ∞ ∞ ∴ ∫ ∫∫
22 70:	À % # b † ‡ ¶ ¶ ○
23 20:	
23 30:	0 1 2 3 4 5 6 7 8 9
23 40:	A B C D E F G H I J K L M N O
23 50:	P Q R S T U V W X Y Z
23 60:	a b c d e f g h i j k l m n o
23 70:	p q r s t u v w x y z
24 20:	あ あ い う う え え お お か が き ぎ く
24 30:	ぐ け げ こ ござ し じ す ず せ ぜ そ ぞ た
24 40:	だ ち ち っ つ づ て で と ど な に ぬ ね の は
24 50:	ば ば ひ び び ふ ぶ ぶ へ べ べ ほ ぼ ほ ま み
24 60:	む め も や や ゆ ゆ よ よ ら り る れ ろ わ わ
24 70:	ゐ を を ん
25 20:	ア アイ イ ウ ウ エ エ オ オ カ ガ キ ギ ク
25 30:	グ ケ ゲ コ ゴ サ ザ シ ジ ス ズ セ ゼ ソ ゾ タ
25 40:	ダ チヂ ッ ツ ツ テ デ ト ド ナ ニ ヌ ネ ノ ハ
25 50:	バ バ ヒ ビ ビ フ ブ プ ヘ ベ ペ ホ ボ ポ マ ミ
25 60:	ム メ モ ヤ ヤ ユ ユ ヨ ヨ ラ リ ル レ ロ ヲ ワ
25 70:	キ エ ラ ン ヴ カ ケ
26 20:	A B Γ Δ E Z H Θ I K Λ M N Ξ O
26 30:	Π P Σ T Υ Φ X Ψ Ω
26 40:	α β γ δ ε ζ η θ ι κ λ μ ν ξ ο
26 50:	π ρ σ τ υ φ χ ψ ω
26 60:	
26 70:	

Figure C.1:

27 20: А Б В Г Д Е Ё Ж З И Й К Л М Н  
 27 30: О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э  
 27 40: Ю Я  
 27 50: а б в г д е ё ж з и й к л м н  
 27 60: о п р с т у ф х ц ч ш щ ъ ы ь э  
 27 70: ю я  
 28 20: — | Г Г | Л | Т | + + — | Г Г  
 28 30: | Л | Т | + + | Т | + + | Т | + +  
 28 40: +  
 30 20: 垂啞娃阿哀愛挨始逢葵茜穉惡握渥  
 30 30: 旭葦芦鱻梓庠幹扱宛姐虻飴綯綾鮎或  
 30 40: 粟裕安庵按暗案闇鞍杏以伊位依偉囿  
 30 50: 夷委威尉惟意慰易椅為畏異移維緯胃  
 30 60: 萎衣謂違遺医井亥域育郁磯一壹溢逸  
 30 70: 稻茨芋鱒允印咽員因姻引飲淫胤蔭  
 31 20: 院陰隱韻吋右宇烏羽迂雨卯鷓窺丑  
 31 30: 確白渦嘘唄鬱蔚鰻姥厖浦瓜閨噂云運  
 31 40: 雲荏餌觀營嬰影映曳榮永泳洩瑛盈穎  
 31 50: 穎英衛詠銳液疫益馭悅謁越閱覆厭円  
 31 60: 園堰奄宴延怨掩援沿演炎焰煙燕猿緣  
 31 70: 艷苑菌遠鉛鴛塩於汚甥凹央奧往応  
 32 20: 押旺橫歐毆王翁襖鶯鷓黃岡冲荻億  
 32 30: 屋憶臆桶牡乙俺卸恩温穩音下化佻何  
 32 40: 伽伽佳加可嘉夏嫁家寡科暇果架歌河  
 32 50: 火珂禍禾稼箇花苛茄荷華菓蝦課擘貨  
 32 60: 迦過霞蚊俄峨我牙画臥芽蛾賀雅餓駕  
 32 70: 介会解回塊壞迴快怪悔恢懷戒拐改  
 33 20: 魁晦械海灰界皆繪芥蟹開階貝凱劾  
 33 30: 外咳害崖慨概涯碍蓋街該鎧骸湮馨蛙  
 33 40: 垣柿蛎鈎劃嚇各廓扞攪格核殼獲確穫  
 33 50: 覺角赫較郭閣隔革学岳樂額顎掛笠桎  
 33 60: 櫃梃鯁渴割喝恰括活渴滑葛褐轄且鏗  
 33 70: 叶柁樺鞞株兜竈蒲釜鎌嚙鴨栢茅萱  
 34 20: 粥刈苻瓦乾侃冠寒刊勘勸卷喚堪姦  
 34 30: 完官寬干幹患感慣憾換敢柑桓棺款飲  
 34 40: 汗漢澗灌環甘監看竿管簡緩缶翰肝艦  
 34 50: 莞觀諫貫還鑑間閑闕陷韓館館丸含岸  
 34 60: 巖玩癌眼岩翫贗雁頑顏願企伎危喜器  
 34 70: 基奇嬉寄岐希幾忌揮机旗既期棋棄

Figure C.2:





a7 a0: А Б В Г Д Е Ё Ж З И Й К Л М Н  
 a7 b0: О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э  
 a7 c0: Ю Я  
 a7 d0: а б в г д е ё ж з и й к л м н  
 a7 e0: о п р с т у ф х ц ч ш щ ъ ы ь э  
 a7 f0: ю я  
 a8 a0: — | Г Г | Л | Т Т | 十 + — | Г Г  
 a8 b0: | Л | Т Т | 十 + | Т Т | 十 + | Т Т | 十  
 a8 c0: 十  
 b0 a0: 亜啞娃阿哀愛挨始逢葵茵穉惡握渥  
 b0 b0: 旭葦芦蓼梓庄幹扱宛姐虻飴絢綾鮎或  
 b0 c0: 粟裕安庵按暗案闇鞍杏以伊位依偉囿  
 b0 d0: 夷委威尉惟意慰易椅為畏異移維緯胃  
 b0 e0: 萎衣謂違遺医井亥域育郁磯一壹溢逸  
 b0 f0: 稻茨芋鱒允印咽員因姻引飲淫胤蔭  
 b1 a0: 院陰隱韻吋右宇烏羽迂雨卯鷓窺丑  
 b1 b0: 確白渦噓唄鬱蔚縵姥厖浦瓜閨噂云運  
 b1 c0: 雲荏餌觀營嬰影映曳榮永泳洩瑛盈穎  
 b1 d0: 穎英衛詠銳液疫益馱悅謁越閱榎厭円  
 b1 e0: 園堰奄宴延怨掩援沿演炎焰煙燕猿緣  
 b1 f0: 艷苑菌遠鉛鴛塩於汚甥凹央奧往応  
 b2 a0: 押旺橫歐毆王翁襖鶯鷓黃岡冲荻億  
 b2 b0: 屋憶臆桶牡乙俺卸恩温穩音下化佻何  
 b2 c0: 伽伽佳加可嘉夏嫁家寡科暇果架歌河  
 b2 d0: 火珂禍禾稼箇花苛茄荷華菓蝦課擘貨  
 b2 e0: 迦過霞蚊俄峨我牙画臥芽蛾賀雅餓駕  
 b2 f0: 介会解回塊壞廻快怪悔恢懷戒拐改  
 b3 a0: 魁晦械海灰界皆繪芥蟹開階貝凱劾  
 b3 b0: 外咳害崖慨概涯碍蓋街該鎧骸湮馨蛙  
 b3 c0: 垣柿蛎鈎劃嚇各廓扞攪格核殼獲確穫  
 b3 d0: 覺角赫較郭閣隔革学岳樂額顎掛笠捰  
 b3 e0: 櫃梃鯁渴割喝恰括活渴滑葛褐轄且鏗  
 b3 f0: 叶柁樺鞫株兜竈蒲釜鎌嚙鴨栢茅萱  
 b4 a0: 粥刈苻瓦乾侃冠寒刊勘勸卷喚堪姦  
 b4 b0: 完官寬干幹患感憤憾換敢柑桓棺款歛  
 b4 c0: 汗漢澗灌環甘監看竿管簡緩缶翰肝艦  
 b4 d0: 莞觀諫貫還鑑間閑閑陷韓館館丸含岸  
 b4 e0: 巖玩癌眼岩翫贗雁頑顏願企伎危喜器  
 b4 f0: 基奇嬉寄岐希幾忌揮机旗既期棋棄

Figure C.4:

SHIFT-JIS CODIERUNG

81 3f: ` ´ ° ´ . . . : ; ? ! \* . ´ ´ ´ ´ ´  
 81 4f: ^ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯ ¯  
 81 5f: \ ~ \| | …… ‘ ’ “ ” ( ) [ ] [ ]  
 81 6f: || < > < > 「 」 『 』 【 】 + - ± ×  
 81 80: ÷ = ≠ < > ≤ ≥ ∞ ∴ ♂ ♀ ° ´ ´ ´ ´ º  
 81 90: \$ ¢ £ % # & \* @ § ☆ ★ ○ ● ◎ ◇  
 81 9e: ◆ □ ■ ▲ ▼ ◆ ▼ ※ 〒 → ← ↑ ↓ =  
 81 ae: € ∃ ⊆ ⊇ ⊂ ⊃  
 81 be: U ∩ ∧ ∨ ↗ ⇒ ⇔ ∇  
 81 ce: ∃ ∠ ⊥ ∩  
 81 de: ∇ ≡ ≐ ≍ ≎ ≏ ≐ ∞ ∞ ∞ ∞ ∞ ∞ ∞ ∞  
 81 ee: Å % # b ♪ † ‡ ¶ ◯  
 82 3f:  
 82 4f: 0 1 2 3 4 5 6 7 8 9  
 82 5f: A B C D E F G H I J K L M N O  
 82 6f: P Q R S T U V W X Y Z  
 82 80: a b c d e f g h i j k l m n o  
 82 90: p q r s t u v w x y z  
 82 9e: ああいううええおおかがきぎく  
 82 ae: ぐげげごござしじすずせぜそぞた  
 82 be: だちちっつづてでとどなにぬねのは  
 82 ce: ばびひびびふぶぶへべべほほほまみ  
 82 de: むめもややゆゆよよらりるれろわわ  
 82 ee: るゑをん  
 83 3f: アアイウウエエオオカガキギク  
 83 4f: グケゲゴゴサザシジスズセゼソゾタ  
 83 5f: ダチヂッツツテデトドナニヌネノハ  
 83 6f: ババヒビピフブプヘベベホボボマミ  
 83 80: ムメモヤヤユユヨヨラリルレロワワ  
 83 90: キエランヅカケ  
 83 9e: Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο  
 83 ae: Π Ρ Σ Τ Τ Φ Χ Ψ Ω  
 83 be: α β γ δ ε ζ η θ ι κ λ μ ν ξ ο  
 83 ce: π ρ σ τ υ φ χ ψ ω  
 83 de:  
 83 ee:

Figure C.5:

84 3f: А Б В Г Д Е Ё Ж З И Й К Л М Н  
 84 4f: О П Р С Т У Ф Х Ц Ч Ш Щ Ъ Ы Ь Э  
 84 5f: Ю Я  
 84 6f: а б в г д е ё ж з и й к л м н  
 84 80: о п р с т у ф х ц ч ш щ ъ ы ь э  
 84 90: ю я  
 84 9e: — | ГГ | Л | ТТ | 十 | ГГ  
 84 ae: | Л | ТТ | 十 | ТТ | 十 | ТТ | 十  
 84 be: 十  
 88 9e: 啞啞娃阿哀愛挨始逢葵茜穉惡握渥  
 88 ae: 旭葦芦慘梓庄幹扱宛姐虻飴綯綾鮎或  
 88 be: 粟裕安庵按暗案闇鞍杏以伊位依偉囿  
 88 ce: 夷委威尉惟意慰易椅為畏異移維緯胃  
 88 de: 萎衣謂違遺医井亥域育郁磯一壹溢逸  
 88 ee: 稻茨芋鱒允印咽員因姻引飲淫胤蔭  
 89 3f: 院陰隱韻吋右宇烏羽迂雨卯鷄窺丑  
 89 4f: 確白渦噓唄鬱蔚曼姥既浦瓜閏噲云運  
 89 5f: 雲荏餌靛營嬰影映曳榮永泳洩瑛盈穎  
 89 6f: 穎英衛詠銳液疫益馱悅謁越閱覆厭円  
 89 80: 園堰奄宴延怨掩援沿演炎焰煙燕猿緣  
 89 90: 艷苑菌遠鉛鴛塩於汚甥凹央奧往応  
 89 9e: 押旺橫欧毆王翁襖鶯鷓黃岡冲荻億  
 89 ae: 屋億臆桶牡乙俺卸恩温穩音下化佻何  
 89 be: 伽伽佳加可嘉夏嫁家寡科暇果架歌河  
 89 ce: 火珂禍禾稼箇花苛茄荷華菓蝦課擘貨  
 89 de: 迦過霞蚊俄峨我牙画臥芽蛾賀雅餓駕  
 89 ee: 介会解回塊壞廻快怪悔恢懷戒拐改  
 8a 3f: 魁晦械海灰界皆繪芥蟹開階貝凱劾  
 8a 4f: 外咳害崖慨概涯碍蓋街該鎧骸湮馨蛙  
 8a 5f: 垣柿蛎鈎劃嚇各廓拉攪格核殼獲確穫  
 8a 6f: 覺角赫較郭閣隔革学岳樂額顎掛笠椹  
 8a 80: 櫃棍猷渴割喝恰括活渴滑葛褐轄且鏗  
 8a 90: 叶柁樺鞣株兜竈蒲釜鎌嚙鴨栢茅萱  
 8a 9e: 粥刈苻瓦乾侃冠寒刊勸勸卷喚堪姦  
 8a ae: 完官寬干幹患感慣憾換敢柑桓棺款歛  
 8a be: 汗漢澗灌環甘監看竿管簡緩缶翰肝艦  
 8a ce: 莞觀諫貫還鑑間閑闕陷韓館館丸含岸  
 8a de: 歲玩癩眼岩翫贗雁頑顏願企伎危喜器  
 8a ee: 基奇嬉寄岐希幾忌揮机旗既期棋棄

Figure C.6:

# Appendix D

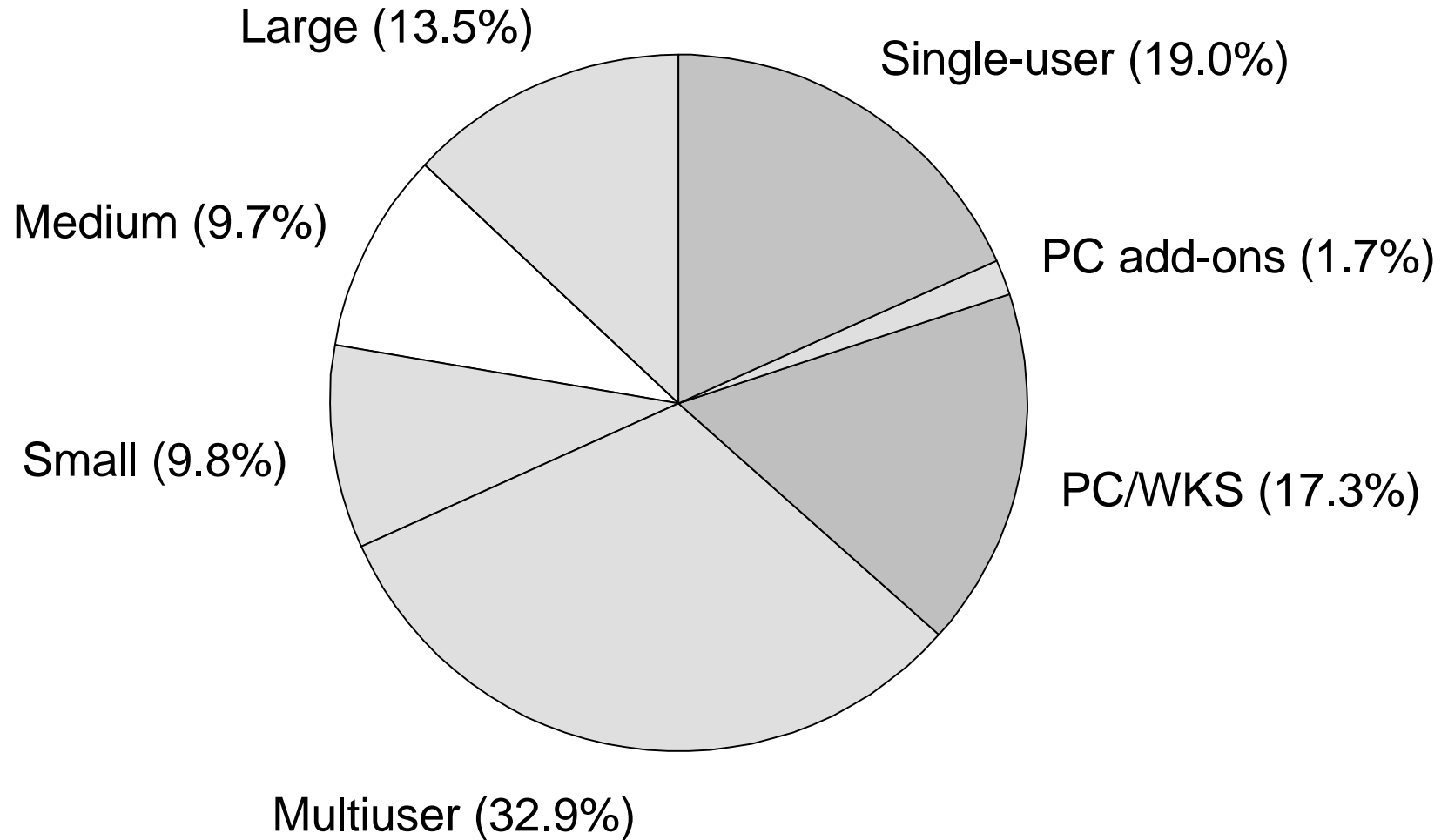
## Useful Addresses

On the next pages you will find some useful addresses which maybe can help you to gather information about the Japanese hard- & software market.

NTT Systems Technologies Inc. 3rd Fl. Nihonbashi Muromachi Bldg 3-16 Nihonbashi Hongoku-cho 3-chome Chuo-ku Tokyo $\bar{T}$ 103 Japan	7th Fl. World Import Mart 1-3 Higashi Ikebukuro 3-chome Toshima-ku Tokyo $\bar{T}$ 170 Japan
Software Consultant Corp. K.K.SCC EDC Bldg 62-1 Nakano 5-chome Nakano-ku Tokyo $\bar{T}$ 164 Japan	Software AG of Far East Inc. Yaesu Mitsui Bldg. 7-2 Yaesu 2-chome Chuo-ku Tokyo $\bar{T}$ 104 Japan
Software Development Corp.Ltd Shibuya Daiichi Seimei Bldg. 8-12 Shibuya 3-chome Shibuya-ku Tokyo $\bar{T}$ 150 Japan	Japan Information Center of Science and Technology JICST 5-2 Nagata-cho 2-chome Chiyoda-ku Tokyo $\bar{T}$ 100 Japan
Software Management Co.Ltd 23rd Fl. Shinjuku Green Tower Bldg. 14-1 Nishi Shinjuku 6-chome Shinjuku-ku Tokyo $\bar{T}$ 160 Japan	NTT Data Communication Systems Corp. No.17 Mori Bldg. 26-5 Toranomom 1-chome Minato-ku Tokyo $\bar{T}$ 105
Software Research Assosciates Inc. 1-1 Hirakawa-cho 1-chome Chiyoda-ku Tokyo $\bar{T}$ 102 Japan	Unix International Inc. Korufuru Kanda 2-1 Kanda Suda-cho 1-chome Chiyoda-ku Tokyo $\bar{T}$ 101
Microsoft Co.Ltd 16th Fl. K Bldg. 5-25 Nishi Shinjuku 7-chome Shinjuku-ku Tokyo $\bar{T}$ 160 Japan	Japanese Standards Assn. 1-24 Akasaka 4-chome Minato-ku Tokyo $\bar{T}$ 107
European Business Community New Hoechst Bldg. 10-16 Akasaka 8-chome Minato-ku Tokyo $\bar{T}$ 107 Japan	JETRO 2-5 Toranomom 2-chome Minato-ku Tokyo $\bar{T}$ 105
Delegation of the Commission of the European Communities Europa House 9-15 Sanban-cho Chiyoda-ku Tokyo $\bar{T}$ 102 Japan	JAPAN JECC Japan Electronic Computer Co.Ltd Shin-Kokusai Bldg. 3-4-1 Marunouchi Chiyoda-ku Tokyo $\bar{T}$ 100 JAPAN
US Export Development Office	

Ministry of International Trade & Industry	Japan Data Communications Association
Machinery & Information Industries Bureau	25-10 Chuo 4-chome Nakano-ku
1-3-1 Kasumigaseki Chiyoda-ku	Tokyo $\overline{T}$ 164 JAPAN
Tokyo $\overline{T}$ 100 JAPAN	Borland Japan Co.Ltd.
JEIDA	Odakyu Minami Aoyama Bldg. 9th Fl
Japan Electronic Industry Development Association	7-8-1 Minami Aoyama Minato-ku
Kikai Shinko Kaikan	Tokyo $\overline{T}$ 107 JAPAN
3-5-8 Shibakoen Minato-ku Tokyo $\overline{T}$ 105 JAPAN	Science and Technology Agency (STA)
Nippon Computer Graphics Association	2-2-1 Kasumigaseki Chiyoda-ku
1-2-2 Uchikanda Chiyoda-ku	Tokyo $\overline{T}$ 100 JAPAN
Tokyo $\overline{T}$ 101 JAPAN	Nihon Sun Microsystems K.K
JASA	Kowa Nibancho Bldg.
Japan System-house Association	11-19 Niban-cho Chiyoda-ku
18-12 Hakozaki-cho Nihonbashi Chuo-ku	Tokyo $\overline{T}$ 102 JAPAN
Tokyo $\overline{T}$ 103 JAPAN	ASCII Corp
K.K. Ashisuto	Three F Minami Ayoma Bldg.
(attn: Bill Totten)	11-1 Minami Aoyama 6-chome
1-1 Manpukuji 1-chome	Minato-ku Tokyo $\overline{T}$ 106 JAPAN
Asaoku Kawasaki City 215 JAPAN	Micro Software Associates
Softbank	Oda Kyo Minami Ayoma Bldg.
Ns Takanawa Bldg.	8-1 Minami Ayoma 7-chome
19-13 Takanawa 2-chome Minato-ku	Minato-ku Tokyo $\overline{T}$ 107 JAPAN
Tokyo $\overline{T}$ 108 JAPAN	NSF/NAESIS
Centre of the International Cooperation for Computerization (CICC)	(Attn: Lawrence A. Grafield)
Mita No.43 Mori Bldg 15f	Room 416A NSF
13-16 Mita 3-chome Minato-ku	1800 G Street Washington DC 20550 USA
Tokyo $\overline{T}$ 108 JAPAN	Unix System Laboratories Pacific Ltd.
	No.1 Nan-Oh Bldg.
	21-2 Nishi Shinbashi 2-chome Minato-ku
	Tokyo $\overline{T}$ 105 JAPAN

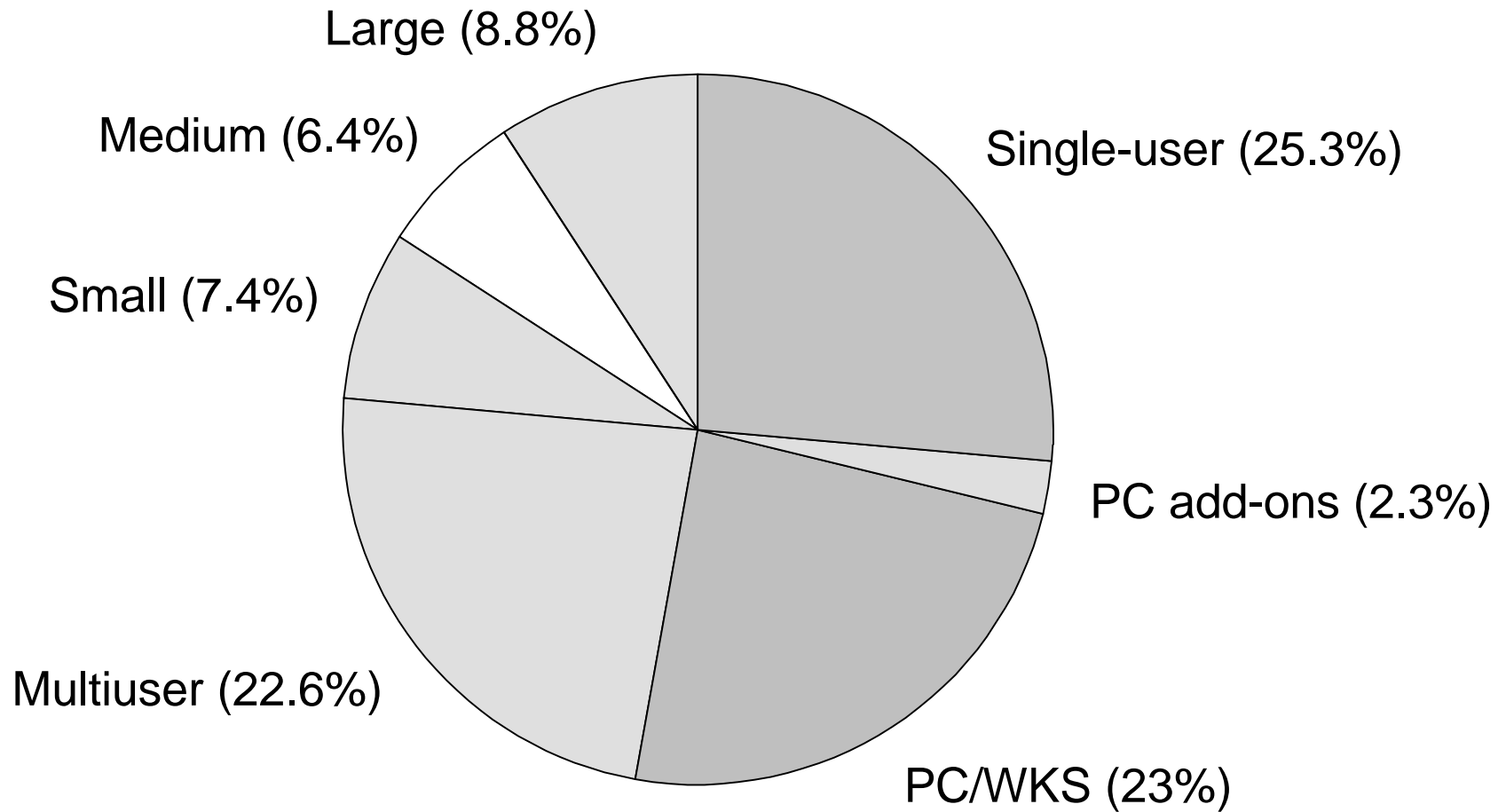
# Proportions of IT Market 1990 Hardware in Japan



Source: IDC, 1991

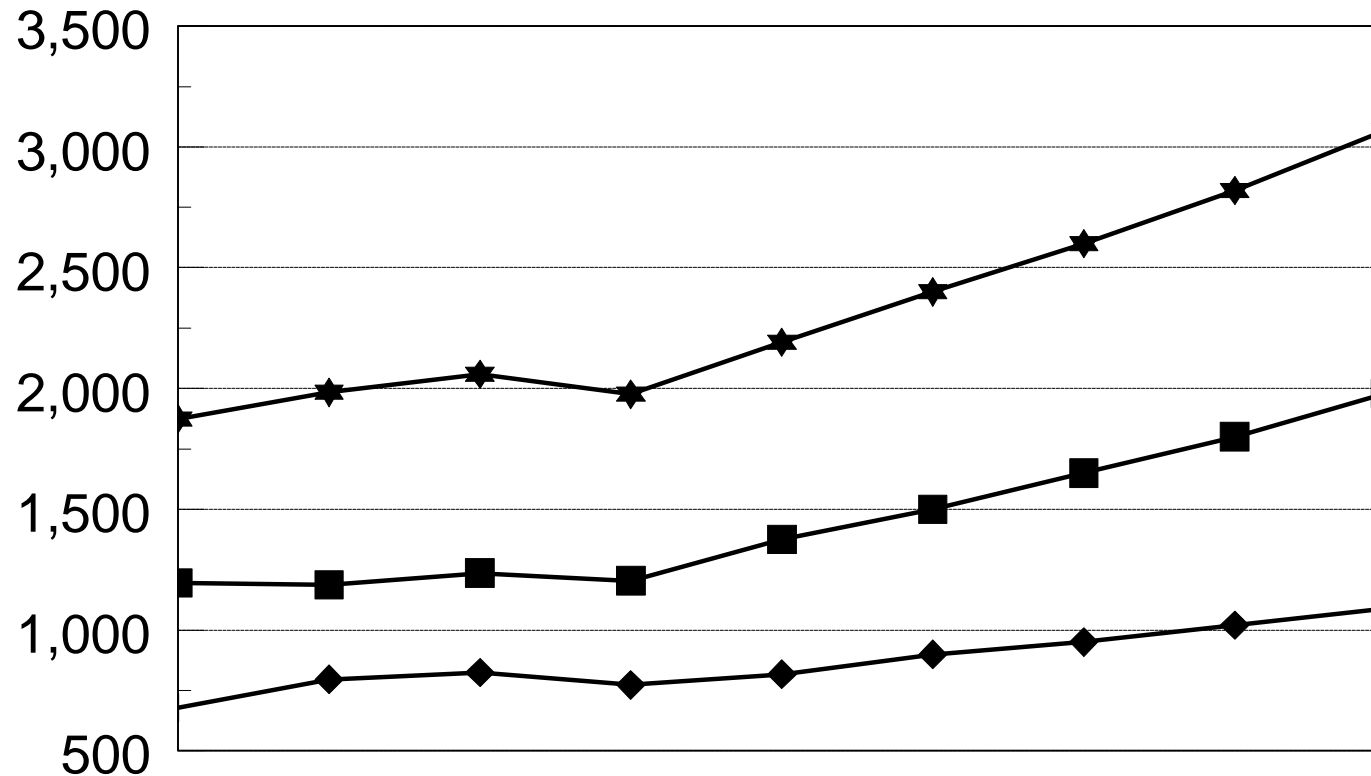


# Proportions of IT Market 1990 Hardware in USA



Source: IDC, 1991

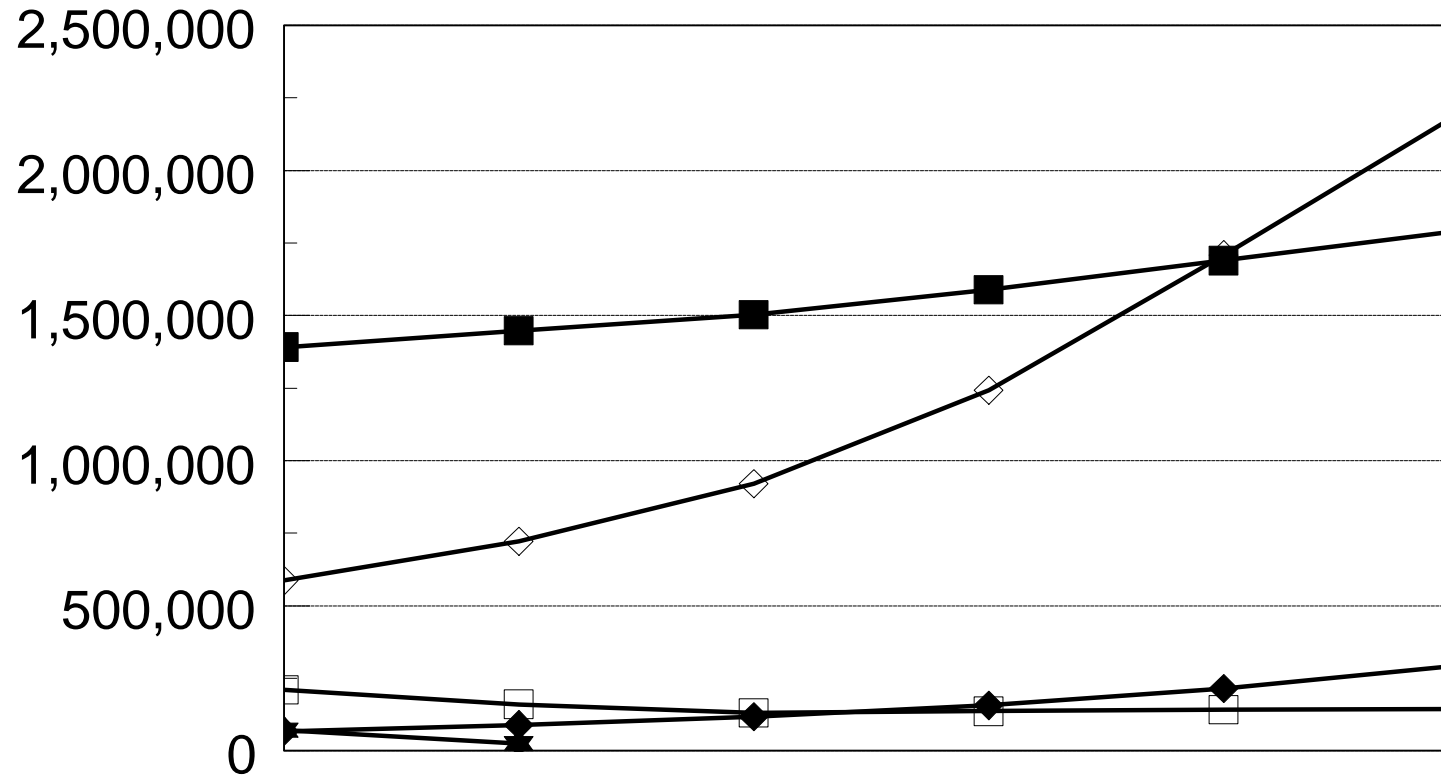
# Total Shipment of PC's in Japan



	1984	1985	1986	1987	1988	1989	1990	1991	1992
Domestic ■	1,196	1,187	1,236	1,204	1,375	1,500	1,650	1,800	1,980
Export +	678	796	824	773	817	900	950	1,020	1,090
Total ★	1,874	1,984	2,059	1,976	2,191	2,400	2,600	2,820	3,070

Sources: JISA, Units : 1000 PC's, estimated

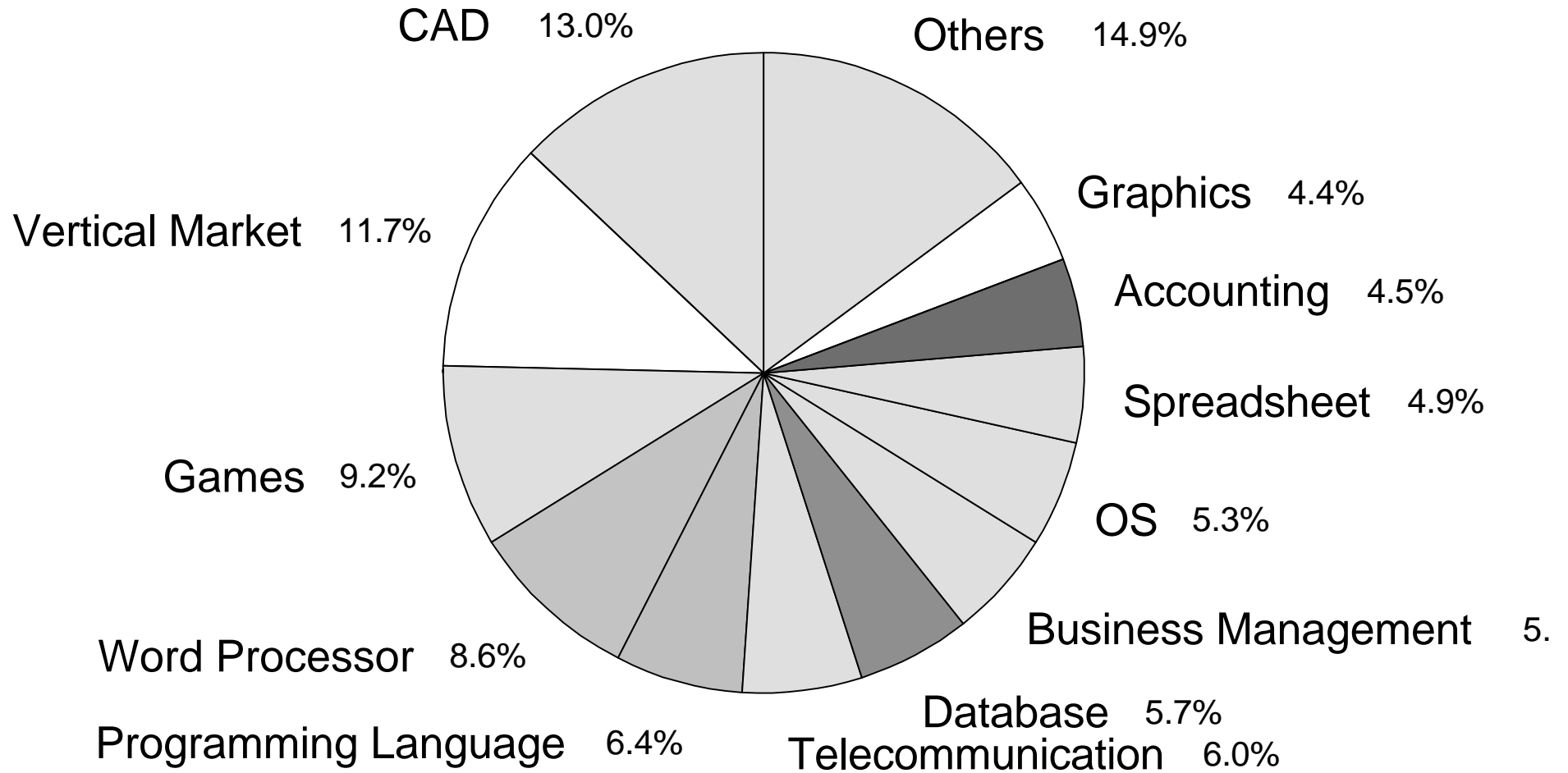
# PC Shipment by Typ in Japan



	1990	1991	1992	1993	1994	1995
OWS ■	1,391,700	1,448,000	1,503,000	1,588,670	1,690,350	1,791,770
EWS +	67,390	89,700	118,300	156,650	214,600	294,000
Others *	72,000	25,000				
Laptop □	210,000	160,000	130,400	136,920	141,700	144,530
Notebook ◇	587,000	722,200	920,800	1,243,100	1,709,260	2,196,400

Sources: IDC, in units

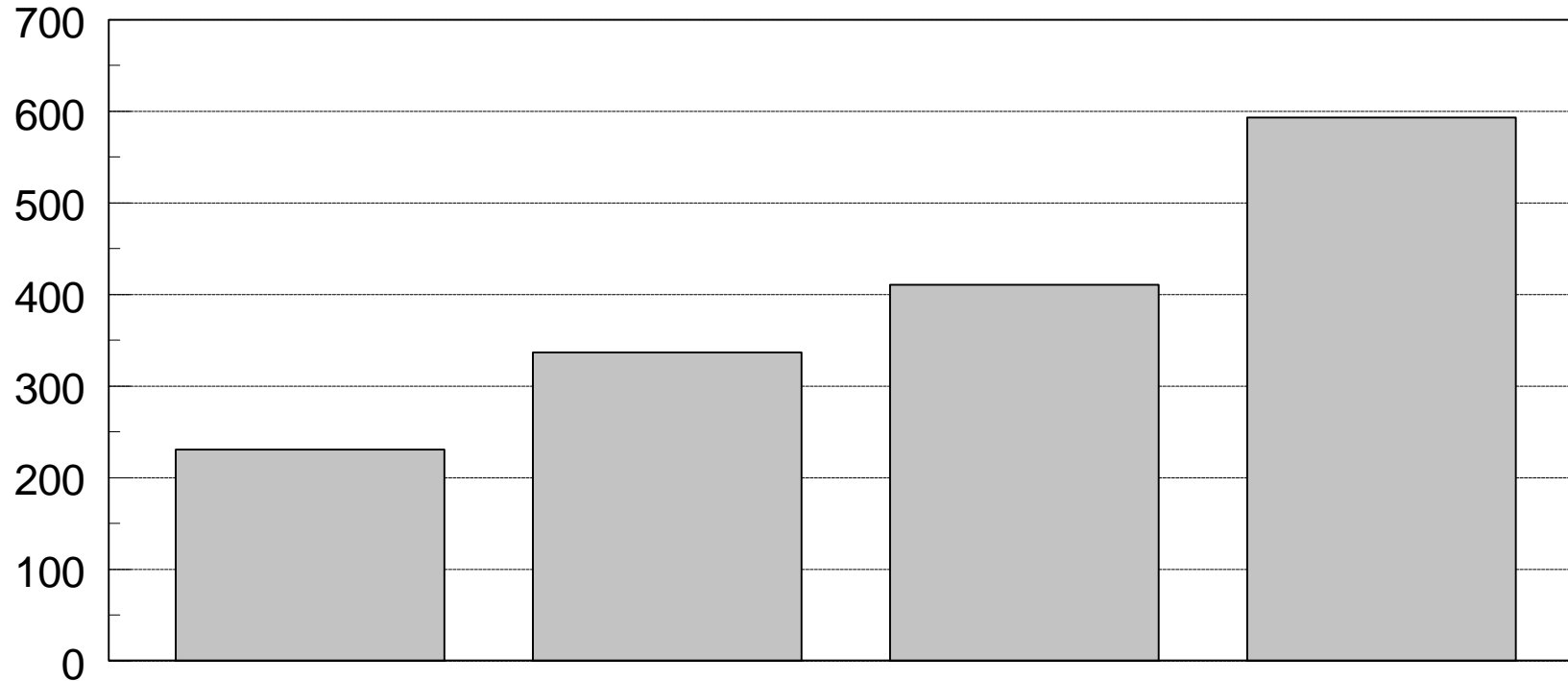
# PC Packaged SW Market by Typ in Japan



1989

Sources: JPL, in percentage

## Packaged SW Sales Forecast for Japan



<b>1988</b>	<b>1989</b>	<b>1990</b>	<b>1991</b>
<b>231</b>	<b>337</b>	<b>411</b>	<b>593</b>

Sources: JPL, in Million \