

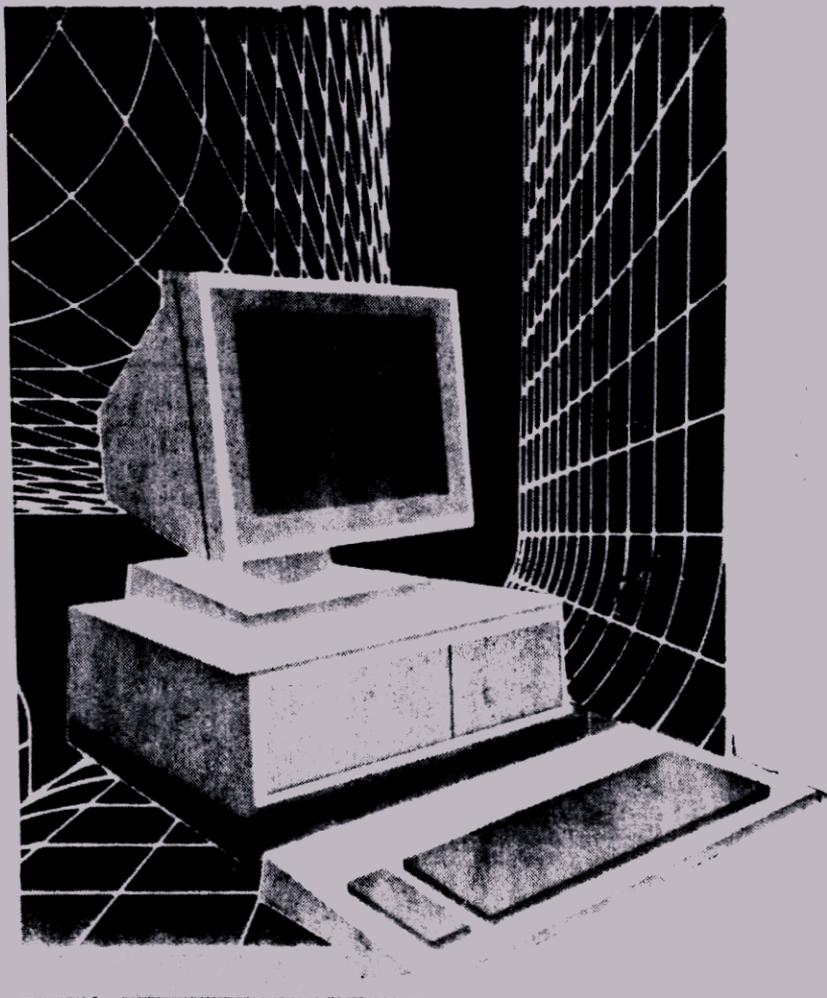
SOUTH BAY USERS GROUP



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DYNAMIC MEMORIES™

MARCH, 1986



MARCH, 1985

YOUR STEERING COMMITTEE

	MEMBER	SBUG-80 USERNAME	PHONE
Chairman:	Chris Oman	OMAN)	(408) 985-9460
Treasurer	Don Rhodes	(DON)	(408) 996-1006
Secretary	Jim Goncalves	(MANGR)	(408) 241-9347
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SYSOP I & COEDITOR	Gerry McKee	(Gerry)	(408) 752-3207
SYSOP II	Don Rhodes	(Don)	(408) 253-6293

OTHER KEY INDIVIDUALS

Cover Artist: No, it was not Rubens
Host Computer: SBUG (ALL) (408) ~~948-8800 (SBUG)~~

If the need arises, feel free to give any one of us a call.

THE EDITOR'S BYTES AND BITES

My Model 4 and I are now a minority in this club. I feel like landore Schwartz at the Meadowbrook Country Club, like Jesse Owens at a meeting of Hitler youth. Never mind, we will survive, like all minorities our culture is the stronger for being isolated and ignored.

Our bulletin board is currently a frail flower languishing in the shadows. Why? Well, it needs watering, it needs fertilizer (there's enough of that in this club).

Someone said that there was no reason to pay when there are dozens of boards locally available ::free ::That's not all the answer. Even the members who have paid are not accessing the board. It's partly a question of time. We got out of the habit of getting on the board during its late infirmity.

A private board has its advantages. Private messages may be exchanged, people who know each other may communicate when face to face dealings are not possible. In the meantime we will have to make a special effort. SUPPORT YOUR LOCAL BOARD!

SOUTH BAY USERS GROUP

SBUG Financial Statement

February 28, 1986

Receipts:	February	Y-T-Date	% Used	Budget
Members dues	180.00	351.00	35.10%	1000.00
SBUG BBS Dues	0.00	0.00	0.00%	200.00
Disk Library	16.00	16.00	13.33%	120.00
Load80	96.00	96.00	48.00%	200.00
Documentation	0.00	0.00	0.00%	40.00
Interest	0.00	3.54	11.80%	30.00

Total Receipts	292.00	466.54	29.34%	1590.00
Disbursements				
Phone	36.06	58.98	24.58%	240.00
Utilities	0.00	40.00	15.15%	264.00
Printing	75.50	172.87	48.02%	360.00
Postage	40.00	50.00	33.33%	150.00
P O Box	0.00	0.00	0.00%	26.00
Bank charges	0.00	0.00	0.00	
Disk Library	0.00	0.00	0.00%	50.00
Documentation	0.00	0.00	0.00%	80.00
SBUG BBS	0.00	0.00	0.00%	200.00

Total Disbursements	151.56	321.85	23.49%	1370.00
Begin Cash Balance	523.87	519.62	100.00%	519.62
Net Receipts	140.44	144.69	65.77%	220.00
Ending Balance	664.31	664.31	89.82%	739.62

MARCH

SOME NOTES FROM THE ELEGANT EDITOR'S PLUSH OFFICE

Yearly dues have been raised to \$20.00. Permanent membership on the bulletin board is still \$25.00. (LOOK, LOOK, LOOK---- That is a one time fee.) We are thinking of offering non-club members the use of the bulletin board for a yearly fee. The steering committee made no final decision on this. Possibly it could be threshed out at a full club meeting.

----- Computer User Groups -----

By the much quoted DON RHODES

In "Personal Computing", February, 1986, there's an article called "Users Groups Get Down To Business." The article says that U.G.s are for computer enthusiasts and are also playing an increasing roll in providing education for business.

Business people now have PCs at their offices and some are getting a second one for home. The U.G.s provide a means for them to obtain additional tips and instructions that is hard to find in all those manuals; provide a place to exchange ideas and find solutions to problems.

The largest U.G., Boston Computer Society, has about 1,000 members with SIGs (Special Interest Groups) for many aspects of using software and hardware: dBASE SIG, Lotus SIG, (well you get the idea). The largest SIG with 400 is PACS, an Apple SIG. Silicon Valley Computer Society (SVCS), in San Jose had reached about 200 members and now its' membership is dwindling to 150. (Why that sounds like SBUG !). Why the decrease in memberships? Why is the Boston Computer Society going strong while SBUG and the SVCS are on the decline?

You would think that Silicon Valley would have the largest user groups in the world... Isn't this the place computers were born? The hey day of users groups hasn't passed, the role of the successful user group has changed to one of "how the chips work" to that of "how does a computer work." Today's computer user is not an engineer, a hacker nor a computer scientist. He or she most likely has a computer because they know some one else that has one and really just wants to get results out of it.

Don't you think SBUG could change to a form that would interest this new breed of computer user? Couldn't we provide public education for "just plain folks" that want results and not have to learn programming or how a disk drive works? We as a club have years of experience behind us. Can we convert that experience into conveyable knowledge to be disseminated among new users? We could help them solve problems, use software, learn to use the modem, where to get repairs? Are you willing to share on that level?

Or, is SBUG going to sit back and watch its demise?

Frank Mayhar
12/29/85

Stephen F. Austin State University
FIDO 124/16

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A SUGGESTION FOR A NEW FILE TRANSFER PROTOCOL

This article addresses the problems inherent in Ward Christensen's original XMODEM protocol, which are not entirely solved by any of the new protocols that have been introduced since. It then proposes a new protocol that would be a natural successor to the XMODEM protocol, and that may provide more effective long-term solutions to those problems.

Introduction

I have used Ward Christensen's XMODEM protocol for several years. In that time I have become aware of (actually, I have run head on into) several problems with it. These problems are mostly solved, to a greater or lesser degree, by many of the current new crop of protocols that have been introduced in the past few years. However, the methods by which they have been solved are less than might be desired, and introduce new problems, mostly of compatibility with existing file transfer methods.

The Problems

The problems I am referring to are (1) the total lack of a way to transfer file information (file name, length, creation date), (2) relatively poor data throughput, and (3) very poor performance of most software at high data rates (i.e. rates greater than about 1200 to 2400 baud).

The first problem is self-evident in the protocol definition itself. Ward Christensen provided no way to transfer file information.

The second problem has to do both with the theoretical efficiency of the protocol, and with the efficiency (or lack thereof) of the implementation. The theoretical efficiency of a protocol is determined by dividing the number of bits of actual data by the total number of bits transmitted. The obvious way to increase such efficiency, then, is to increase the amount of data transmitted relative to the amount of control information transmitted. The straight XMODEM protocol (using 128-byte blocks) ranges from about 95% efficient in the worst case, to about 96% efficient in the best case. (The best case occurs when the number of data bytes fits evenly into the transmitted blocks) [the file length is evenly divisible by the block length, 128 in this case]. The worst case is when the last block transmitted contains only one actual data byte plus filler for the rest of the block.) The efficiency of the same protocol using 1024-byte blocks ranges from 99% in the best case to 93% in the worst case. Efficiency is lowered in any case, of course, if errors occur. The average XMODEM efficiency is, therefore, around 96%. The average efficiency when using 1024-byte blocks is also around 96%.

So increasing the block length is no solution to the theoretical efficiency problem. A better solution would be to use variable-length blocks (say varying between 128 and 1024 or 2048 bytes). This may also help solve another problem.

The major problem with the actual effective data throughput of most XMODEM-type file transfers has to do with the efficiency of the software doing the transfer. In any transfer, the throughput of the transfer is controlled by the speed of the least efficient side of the transfer.

Usually, at 300 or 1200 (or even 2400) baud, the inefficiency of most software is not noticeable. However, when the data rate is increased, the inefficiency of most of the software make the effective throughput stay around 1200 or 2400 baud, at best. (There are notable exceptions to this, particularly Greg Gilley's TERM terminal emulator program for the TI Pro, which is the absolute best I've seen at this. There may be others that I'm not aware of.)

Although the best solution to this problem would be to optimize the efficiency of the software, this may not be feasible in all cases. Longer or variable block lengths, which increase the efficiency of the protocol and make the software spend more time actually transmitting blocks rather than processing, would undoubtedly help, even if it wouldn't completely solve the problem.

In addition, there is a problem that stems from the attempts by a very large number of programmers to solve the problems outlined above. This can be summed up in the statement that none of the current file transfer protocols provide any convenient way for the receiving and transmitting programs to reconcile what extensions to the XMODEM protocol will be used in the current transfer. (These extensions include CRC error checking [rather than the checksum method used in the original XMODEM], and larger data packets [as in the relatively new YMODEM protocol, which provides 1024-byte data packets to increase throughput].) A compatibility problem also exists between different XMODEM-based protocols, such as Telink, MODEM7, and YMODEM.

The current methods to accomplish some reconciliation between receiver and sender range in most new XMODEM-based protocols from nonexistent to the "C-instead-of-a-NAK" method for establishing CRC error checking, and different characters (instead of SOH) as packet prefixes in protocols that use a "packet zero" and non-128-byte-packets (see the descriptions below of the Telink and YMODEM protocols).

Different implementations use different features, and future implementations may use still different features. There is really no way, currently, to accomplish this reconciliation, in any existing protocol.

There is another problem with most XMODEM-based protocols, having to do with CRC error checking. In most implementations, a "C" is sent by the receiver instead of the first NAK, to signal CRC mode. If the transmitter hasn't responded by the third "C", the receive switches to checksum mode, and sends a NAK. The transmitter presumably responds to this by sending the first data packet, and the transfer continues in checksum mode.

The timeout for the response to the "C" is three seconds. Thus, the start of the transfer may be delayed by as much as nine or more seconds, if the transmitter doesn't support CRC error checking.

Some Existing Protocols

There is currently a proliferation of new protocols, all more-or-less loosely based on Christensen's protocol. Most have features that are desirable. However, none of them have provided any really effective, long-term solution to the problems enumerated above, most of them are to some degree incompatible with Christensen's original protocol, and most, if not all, have added a level of complexity, to an originally simple protocol, that prevents them from really taking hold in the user community the way XMODEM has done. Some examples of these protocols include MODEM7 (originator

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unknown), YMODEM (originated by Chuck Forsberg), and Telink (originated by Tom Jennings). There are good and bad points about each of them.

MODEM7 uses a very clumsy and error-prone method of transferring the file name, although this does allow batch file transfers.

YMODEM, used primarily on CP/M and UNIX systems, allows CRC error checking (using the "C-Instead-of-a-NAK" method), 1024-byte data packets, and the transfer of file information (filename, length, and date) in a "packet zero", allowing batch file transfers. A problem exists in the YMODEM protocol, however, in the area of the 1024-byte packet length. According to the definition of the protocol a 1024-byte packet is prefixed with a STX rather than a SOH, and the receiver must be able to handle any mix of 128- and 1024-byte packets. This use of STX as a data-packet prefix is inconsistent with the original simplicity of the XMODEM protocol.

Telink uses the same clumsy method of transferring the file name that is used in MODEM7, which is ironic, as Telink transfers the file name again in a "packet zero", which also contains the file size and date, and is prefixed with a SYN rather than an SOH (see the description, above, of the YMODEM protocol). Telink also provides CRC error checking, using the "C-Instead-of-a-NAK" method.

Another protocol, which is not based on the XMODEM protocol, and which solves most of the problems in that protocol (at the expense of a lot of added complexity), is the Kermit protocol. This protocol uses "command packets" to set various parameters between the receiver and the sender. This protocol is commonly used in university settings, between microcomputers and mainframes. The protocol is Unix-based. The primary reason that Kermit has not taken hold is because of that added complexity. Kermit can be difficult and tedious to implement, and the protocol has features that are unneeded by most microcomputer users, as well as some restrictions not present in the XMODEM protocol.

A New Protocol?

Fine, you say. Problems exist. But is a new protocol required, when there is a huge (well, maybe not huge, but certainly large) proliferation of protocols. Wouldn't a new protocol just add to the existing mess? I say that a new protocol is needed. It should not try to be all things to all people, as some existing protocols do, and it should not compromise the essential simplicity of the original Christensen XMODEM protocol, except where absolutely necessary. It should, however, allow the use of the new features of XMODEM-based file transfer, such as CRC error checking and large packet lengths. It should attempt to allow file transfers with virtually any XMODEM-based file transfer protocol implementation, using the straight XMODEM protocol. It should also be as easily expandable as possible, in order to meet possible future needs.

I propose a new protocol that would incorporate the following features:

- 1) NO IMPLEMENTATION SHOULD BE REQUIRED TO SUPPORT MORE THAN THE MINIMAL XMODEM FILE TRANSFER PROTOCOL, in terms of CRC error checking and packet lengths. This excepts the transfer of file information.
- 2) Transfer of file information, including filename, file size, and file date. The "packet zero" method? "Command packets", as in Kermit?
- 3) An easy way to let the receiver and transmitter agree on what features will be

used in the current transfer. This is the major problem that I see with most of the current XMODEM-based protocols. This might be accomplished several ways. One way would be transmitter-driven, using a "packet zero" containing file info and several bytes devoted to what features are supported. Another method might use Kermit's solution to the problem, which involves the receiver and the transmitter exchanging some kind of packet (a "command packet") containing "feature-present" flags. The features used would be the exclusive-or of the "feature-present" flags. The packets might contain other information, as well.

- 4) The capability to support CRC error checking, without requiring such support. (That is, it should allow CRC error checking, but it should not prohibit the checksum method.)
- 5) The capability of using longer or variable packet lengths to increase data throughput. (Variable-length packets would be easily implemented by adding a control word to each packet containing the length of the packet.)
- 6) Batch file transfers. This should be accomplished easily, if item 2 is successfully accomplished.
- 7) Full minimal XMODEM compatibility, as the default. This means no file information transfer, no CRC error checking, 128-byte packets, and no way for the receiver and transmitter to communicate what features will be used (this last is obvious). This might be accomplished using the "C-instead-of-a-NAK" method, using some other character than C. Read "C" as NAK.
- 8) The protocol should be receiver-driven, as much as possible. However, a method should exist to exploit the full capabilities of each end of the transfer. This requirement may be changed or removed, as it and item 3 may prove to be mutually exclusive.
- 9) Easy expandability. The protocol should include some method (such as reserved fields in command packets or in a "packet zero") for future expansion.

The full definition of the protocol would include all the enhancements outlined above. As shown, the protocol would also allow subsets (including a subset consisting of the original XMODEM protocol), and would define a way to specify which set of enhancements would be used for each transfer.

There are a number of methods of satisfying these requirements. I can see none that exactly fit the spirit of the original XMODEM implementation and that completely eliminate all the problems mentioned in this document. However, it may not be possible to do both. I can see several possible solutions that do satisfy these requirements, using features from several of the existing protocols, and some new features.

Conclusion

The problems mentioned in this document are real, and the great proliferation of file transfer protocols are not helping the matter. As I see it, some new protocol is needed that is a logical successor to XMODEM, that incorporates most of the most-used features of the current protocols, and that is as compatible as possible with existing protocols. I think that the the general outline above may provide such a protocol.

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I have not started implementing this protocol, primarily because I don't want to go to all that work and have it be completely ignored. I would like to see the people most directly affected contribute their opinions and expertise to the solution of the problems I've mentioned. This means you, the public BBS user. By no means am I saying that the protocol I've outlined is THE solution. It is merely a suggestion for one possible solution. However, I do believe that a solution is needed, and soon. Obviously no one protocol can be completely satisfactory to every person in every situation. But we can come up with a solution that solves most of the problems I've mentioned, and is also easy to use and implement.

As I mentioned above, I would like to see a lot of people get involved. My hope is that we, the user community, can get together and design and implement a good new protocol, standardize it, and get it into common use. If we can, perhaps the computer industry, which has for the most part ignored us (although there have been a few notable exceptions recently), will begin to view us as a real innovative and productive force in computing.

Let me hear your opinions. I can be reached on the following BBS's:

JimNet (Austin) RBBS at (512) 837-0953 -- This is the one I use most.

The Warbler (Warble2 FIDO, Dallas area) at (214) 52

ON-LINE WITH YOUR COMPUTER

By Don Rhodes

Your computer offers more than a means to run programs in the local mode. You can use your computer to tie in with the WORLD! Connecting a modem and telephone to your computer brings the outside world in to be displayed on your screen or captured on your disk.

Presently there are more than a million people that use their computer to communicate, exchange ideas and obtain information using their personal computer. I suspect that those that do not use their computer for communications, have some idea that they don't know anyone that they can call if they did have the modem connected.

If you do not call another computer, what is the reason? Check one of the following answers:

- 1) Don't want the expense of a modem
- 2) Don't know who to call
- 3) Don't like calling strangers
- 4) I might look like an idiot, if I did call somewhere.
- 5) I don't want to tie up my phone by using the computer
- 6) My reason is: ??????????
- 7) It's a lot of work learning that stuff

When I bought my first computer, I added the Modem interface and modem and a Terminal Program called VideoText. The computer dealer had bundled an application to Dow Jones News Service and an application to CompuServe in with the Terminal program. All I had to do was insert the diskette with the terminal program on it and press the START key to get the program going. From the Main Menu, I selected the Auto Log on for CompuServe and was connected within 5 seconds to CompuServe where I filled out the on-line application and provided my Master Card credit card number. A few days later I

received a letter from CompuServe which provided me with my access password and account number.

	Initial Fee	On-Line Services		Members
		300	- Baud / - 1200	
CompuServe	\$40	\$6.00	\$12.50	270,000
The Source	\$50	\$8.40	\$10.80	60,000
SBUG BBS	\$25	\$0.00	\$0.00	30

* Charge per hour at the specified baud rate.

After the first month had passed, I received the bill from CompuServe and decided then that the expense of CompuServe was not within my budget and discontinued using the service. I read in the Sunday paper that there was a computer user club meeting the next Tuesday and decided to attend. My computing life changed from there on. The members in the club were very helpful and explained that they operate a Bulletin Board Service which I could call. I asked "what is the Bulletin Board used for?" I was told that I could use it to keep informed on the activities of the club and to download program files. I could also use it to upload programs that I had written or that I had obtained from somewhere else (non copy righted programs).

The difference between a commercial service and a club BBS is that I get to meet the people I exchange messages with and I can upload and download program files (files that are in binary format, commercial services are limited to ASCII text formatted files).

Another benefit of using a BBS is getting a message to another member, even if that member is unavailable by phone. I just call the BBS and leave a message. Usually by that evening, the member has logged on and replied to the message, or given me a call. It's sort of like an answering machine, except the messages can be composed like a letter, then sent to the BBS.

What we need next is a BBS that can call the phone number of the addressee and speak the message into the phone; a talking message BBS and account number.

LIST OF COMPUTER BULLETIN BOARDS

Updated January 25, 1986

TRS-80 Boards...

South Bay Users Group	253-6293 Color Board
South Bay Users Group	292-7284 Fido Net
Byte Bandits of America	374-3974
Buccaneer Harbor	980-0276 (Moved to L.A.)
Man 'O War	243-2370
(Coco Users SIG on Man 'O War)	
Shark's Head	247-4810
Delta Wing	370-6527
Redwood Color Board	415/591-7366
Sysop: Brad Ryan 24hrs	

.Section 1. IBM PC BBS - South Bay Area - Area Code 408

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.292-7284 San Jose, CA Public BBS limited access.
.300/1200 baud. 24 hours. XMODEM UL/DL. Messages.
.Sysops: Don Rhodes & Gerry McKee
.User group: South Bay Users Group (SBUG) Tandy orientation.

370-9187 San Jose, CA Buccaneer's Cove
300/1200 TBBS 144mbdisk DL/UL Messages
Many Sigs - Sysop: Red Beard

735-7190 Sunnyvale, CA Public Domain
Software Exchange
300/450/1200 baud. 24 hours. XMODEM UL/DL. Messages.
SysOps: Tom Shinn and Gene Fuss

735-7390 Sunnyvale, CA. LogOn Unlimited
.300/1200 baud, 8-N-1, 24hrs, XMODEM DL of PDSE NEW directory
.files, chat, messages, 3 lines Sysops: Brad Kidder, Bob
.Sawyer, Lichen Wang

.735-8181 Sunnyvale, CA. Living BBS Sysop: Bob Schakow
.300 baud

.745-6721 Los Gatos, CA On-Line Want Ads
.dBASE II BBS 300/1200 8-N-1

.972-4765 San Jose, CA PC TIE Sysop: Mark Chance
.300 baud, 8-N-1, 24hrs, XMODEM, UL/DL, PW
.San Jose PC Computer Club

.945-8358 San Jose, CA North San Jose RBBS
.300/450/1200 baud XMODEM UL/DL Messages
.SysOp: Doug Mulhair

.225-1845 San Jose, CA RBBS
.Sysop: Gene Lowry
.300/450/1200 baud XMODEM UL/DL Messages

.356-0567 Los Gatos, Ca Future Positive RBBS SysOp:
.300/450/1200 baud Xmodem UL/DL

.982-4044 Santa Clara, CA. Mainframe BBS Sysop: Jim Sturtevant 300/1200 baud, E-7-1
only. Use the commands in <
to log onto this board: .<C/R
Computer #? .<BBS C/R
GO <C/R BBS C/R
Userid# .<BBS C/R
id,passwd? <demo

.946-3269 San Jose, CA Sigma Designs RBBS
.Sysop: John Chan UL/DL Messages

.946-4933 Milpitas, CA Quest .Sysop: Mike Ketcham
.1200 baud, XMODEM UL/DL, Messages,
.Genealogy Special Interest Group

.733-1364 Sunnyvale, CA Crystal Castle
.Sysop: Manish Vij
.300/1200 baud, XMODEM UL/DL, Messages, Many SIGs

.861-5733 San Francisco, CA. RBBS Sysop: Harry
.Logan 300/1200 baud, 6p - 8a wkdys, 24 hrs wknds, Xmodem,
.Upld/dwnld

.481-0252 San Lorenzo, CA. "No Name RBBS"
.Sysop: Terry Taylor
.300/1200 baud, 24 hrs, Xmodem, Upld/dwnld

.937-0156 Walnut Creek, CA. WCRBBS Sysop: Wes Meler
.300/450/1200 baud, 24 hrs, UL/DL, XMODEM, Messages.
. Note: downloads disabled 5-7pm.

.689-2090 Concord, CA AIRCOMM RBBS-PC Sysop: Jon Martin
.300/1200 baud, 24 hours. UL/DL, Messages.

.339-8457 East Bay The Exchange Sysop: Ann Meyer
.Interests: Recipes Care for Homeless Women's Interests
.Computers 300 baud only. 8pm to 8am XMODEM/Messages/UL/DL

.829-8691 San Ramon, CA RBBS-PC
.Sysop: Norm McMullen
.300/1200 baud, 24 hours. UL/DL, Messages.

.327-6197 Palo Alto, CA Program-Land RBBS
.Sysop: James Arnold
.300/1200 baud, limited hours. UL/DL XMODEM Message.

.864-1418 San Francisco, CA FIDO RBBS Sysop: Tom
.Jennings 300/1200 baud. UL/DL XMODEM.

.974-6559 San Francisco, CA Friendly RBBS
.SysOp: John Summers
.300/1200 baud. Limited hours. Sections for TI and Apple
.users.

.793-9983 Risk Management and Insurance RBBS
.SysOp: Bob Herrick 300/1200 baud. 11 pm - 6 pm.

.341-2962 San Mateo, CA Computers for Christ RBBS
.SysOp: Martin Fitch
.300/1200 baud. 24 hrs. UL/DL/XMODEM Messages

.895-9423 San Leandro, CA OSI RBBS Sysop: Craig Kim
.300/1200 baud. 6pm-8am, weekdays, 24 hrs, weekends.
.UL/DL/XMODEM/Messages NOTE! Use RBBS as log-on password.

.838-7687 Danville, Ca DIABLO RBBS
.SysOps: Jeff & Phil
.300/450/ baud, 6p-11p weekdays, 9p-12p wkends UL/DL

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-----
.268-5157 Norad RBBS                      Sysop:Greg Ellis
.300/450/1200 baud, 8-N-1, 24 hrs Xmodem,
.U/L/DL 20 megs
-----
.The Alamo.....224-8540 voice 8-7-85,
.Big Foot.....225-1845 no answer 8-7-85
.Compushop BBS.....226-4277 - answer 8-7-85
.Nomad II.....227-9366 disconnect 8-7-85
.Classified BBS.....238-4017 voice 8-7-85
.RCP/M RBBS Servu..... 238-9621
.Buccaneer's Man'O'War.....243-2370 busy 1-7-86
.RCP/M ZeeMachine.....245-1420
.Pirates.....246-7239 no answer 8-7-85
.Crumal's Dimension.....246-7854 no answer 8-7-85
.RCP/M RBBS Santa Clara.....247-2853
.Shark's Head..... 247-4810 off-lne 'til Jan 16
.Dark Tower.....248-5135 disconnect 8-7-85
.Hacker's Hangout.....248-6518 no answer 8-7-85
.Rat's Nest.....249-6946 atari
.Affordable Harbor.....249-7599 ck'd 8/85
.RCP/M Z-nod3e Digitron...253-1309
.Random BBS.....253-1384 ans machine 8-7-85
.Twilight Zone.....253-2140 no answer 8-7-85
.Iron Maiden.....253-5123 busy 8-7-85
.ATari GRAFEX.....253-5216
.General Store.....253-8528 no answer 8-7-85
.Tavern.....255-7571 answered 8-7-85
.Caverns of Atlantis.....257-6115
.Iron Works.....257-7147
.RCP/M RBBS Ampro Users...258-8128
.Trivia.....259-4030
.Ghost Ship.....259-7194
.Wang Bang.....263-1345
.Oxgate 2.....263-2588
.Starbase.....267-3558
.Devil's Domain.....268-2660
.Social Impact Research...269-7045
.Dial-A-Deal.....272-0283
.USS Apple.....281-0344
.West-Coast Underground...286-4031
.Doghouse.....287-9996
.ATARI Forem.....289-9151
.Fly By Night.....293-6207
.RCP/M Skyhouse Systems...296-5078
.AMIS IBBS .....298-6930
.Lambda Switchboard.....298-6969
.Stewart II.....338-9511
.Metropolis BBS.....353-1553
.RCP/M Oxgate Saratoga...354-5934
.Bay City .....364-8517
.Delta Wing .....370-6527
.The Animal House.....374-0966
.Byte Bandits.....374-3974
.RCP/M Oxgate.Potpouri....378-7474
.Database 2.....378-8733
.RCP/M Simms.....732-9190
.RBBS RonTech.....773-9880
.RCP/M RBBS Eigenware.....867-6575
.Caltex-99.....926-8767
.RBBS-PC North San Jose...945-8358
.ABBS.....415-284-9524
.Living BBS.....415-327-8876
.INFO-NET.....415-349-3126
.IAC Message Base.....415-367-1339
.RCP/M.....415-383-0473
.MS.....415-462-7419
.Conference Tree 1.....415-526-7733
.Conference Tree 3.....415-538-3580
.Kinky Kumputer.....415-552-8268
.ABBS.....415-585-6334
.Oasis.....415-591-5509
.Aardwolf.....415-651-4147
.CBBS.....415-658-2919
.ABBS.....415-794-9314
.Horny Mag Service.....415-845-2079
.PMS.....415-851-3453
.ABBS.....415-863-4703
.ABBS.....415-881-5662
.Conference Tree 2.....415-928-0641

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.RCP/M.....	415-949-2563	.Appler I.....	866-6330
.RCP/M.....	415-965-4097	.Scavenger BBS.....	867-7982
.Tamarlane's Keep.....	429-1995	.T.I. Stick.....	926-4413
.Conference Tree.....	475-7101	.Caltex.....	926-8767
.The Wall.....	554-0602	.Caltex.....	926-8767
.Merlin's Castle.....	578-1563	.Realm of the .Rogues.....	941-1990
.Moondog.....	578-2266	.Nwonknu II.....	941-3831
.BAAUG.....	578-2390	.Haunted House.....	941-7256
.RCP/M RBBS SkyhouseSys.....	578-6185	.Ram-Page.....	945-1569
.T.I. Club.....	578-6264	.North San Jose BBS.....	945-8358
.Caltex 12.....	578-6264	.Green Machine.....	946-2179
.Microbur.....	629-2277	.MRC.....	968-6501
.Tamarlane.....	662-1810	.Planet Earth.....	968-7728
.Tamarlane's Keep.....	688-9629	.Paladin Took's AE.....	978-7037
.Mines of Moria.....	688-9629	.Buccaneer Harbor.....	980-0276
.RCP/M Sunnyvale.....	730-8733	.Rainbow.....	984-7937
.Van Vision.....	732-1079	.Software Snatchers.....	986-8685
.Oracle RCP/M.....	732-9190	.Shadow AE..Pass:SHADOW....	996-1137
.Crystal Castle.....	733-1364	.Dragon's Lair.....	996-7464
.Rainbow COCO BBS.....	733-6809	.Shaolin Temple.....	997-0440
.Blackwood's Castle.....	736-3384	.The Graveyard.....	997-1175
.Old SBUG Number.....	737-7284	.Color 80.....	997-2790
.Atari BBS1.....	739-5370	.Battleground.....	997-3341
.Anything Goes.....	745-7524	.Buccaneer's Brigantine	997-3486
.Caltex.....	794-8050		
.Atari BBS 2.....	866-4224		

From InfoWorld... 02/10/86

PC Users Claim Memory Boards Have Problems...

It seems that users have encountered problems using the expanded memory boards (the one that go beyond 640k). Speed up boards that use the Cache technique cannot address the expanded memory locations.

Memory Expansions.

The expanded memory boards standard was developed by Lotus/ Intel/ Microsoft and offers access up to 8mb of Ram. Intel's "Above Board" is one of these memory expansion boards Call 800-538-3378 for info. AST's Rampage memory expansion to 2mb Ram/board takes a slightly different approach. It offers a Superset of the specification.

What is Excel? Produced by Microsoft, Excel is a spreadsheet for the MAC. It composes 31% of Microsoft's software business.

New Lap Top uses MsDos and Xenix. The 32 bit 32032 cpu computer from Compucorp, Santa Monica has 360k floppy and 20mb hard drives with 1.64 mb Ram. Priced at only \$4,995.

Windows... What is it? Windows by Microsoft is a user interface program requiring about 1.5 mb of disk space and at least 640k to be usable. The speed of execution is about as good as a turtle in a rabbit race. But then so is their word processor: WORD.

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