Acknowledgments

The work presented in this dissertation deals with many levels of the system architecture and builds on the results of several research communities; clearly, this would not have been possible without the support of a large number of colleagues at Berkeley and around the country. Nobody, however, contributed more to the success of my research than the members of our research group.

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My life as a graduate student would have been grim without my office buddies, in particular Klaus Erik Schauser. How many night hours did we spend debating over the details of the TAM implementation? In all of that, it is Klaus' fault that all of us remained honest (well, mostly...): it's impossible to trick this guy! No eloquence, no fervor, no beauty, no wishing, no fudging, nothing but the pure facts will convince him. But Klaus is also the best office buddy I can imagine: we consulted each other on everything and many times I would have done something foolish without him. In the final stages of the dissertation writing, Klaus offered careful proofreading and invaluable critical insight, he helped with the bibliography, and he even bought me four extra days of fixing by volunteering to print and file the dissertation for me.

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John Ousterhout quizzed me in my qualifying exam, inspiring new ideas and making the name “Active Messages” stick, for which I am very grateful. As I found out later, the name was already overloaded [Wal82, LM85], but fortunately in a quite different context.

I developed the first implementation of Active Messages on the nCUBE/2. The kernel hacking necessary would not have been possible without the help of nCUBE Corp. which supplied not only the kernel sources, but also loaned us a 4-processor “baby cube” to reboot at leisure. I would particularly like to thank Steve Colley, Erik de Benedictis, and Kevin Kissell who helped put all the pieces together. The big-machine benchmark runs were made on the 1024-node machine at Sandia Nat’l Labs and I am grateful to the Sandia crew for being able to take the machine over one evening during Supercomputing ’91 while the habitual users were enjoying the cocktails in the hospitality suites...

The kind folks at Thinking Machine Corp. were invaluable in getting Active Messages onto the CM-5 quickly. The technicians rolled a great machine into the basement and Moose (Adam Greenberg) gave us a jump-start lecture on the CM-5 which got us up and running in a week. In an uncomplicated manner, which we immediately appreciated, he just walked into our office and explained how the CM-5 network interface worked. As simple as that. No top secrets, no NDAs, no signing-your-life-away. Back in Cambridge, Moose remained our primary source for help. I can’t recount how many times I sent him a question at 2am (PST) just to receive an answer three minutes later (no, he didn’t get up early). This was just the beginning for great relationships with many others at TMC, most of which Steve Heller helped coordinate. He made sure our problem reports didn’t fall through the cracks, he translated our requests into TMC-speak with humor, and otherwise pulled the right strings at the right time.

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The date at the end of the preface says it all: this dissertation was not completed by the time I took off from Berkeley to join the faculty at Cornell. I would like to thank my new colleagues, in particular Bob Constable and Ken Birman, for creating an environment in which I was able to finish this work while teaching a graduate course.

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