Errata to *So you went and bought a vector computer*

Stewart A. Levin

In SEP-44 I wrote a short article discussing how to write FFT algorithms for a vector computer such as the Convex C-1 here at SEP. In the appendices I gave some simple Fortran codes reprinted by permission of North-Holland from an excellent article by Paul Swarztrauber in "Parallel Computing". I also supplied some comparative timings of them for our Convex. Since then I've discovered a typographic mistake and a Fortran compiler problem that invalidated several of the timings. The corrections follow.

The declaration in Figure 7 for subroutine CANGLE was in error. Argument N should have been M. This invalidated my timings for the Pease long-vector FFT because this typo caused CANGLE to reset the vector length N to 1. In addition to this error on my part, several of the subroutines had been improperly optimized by the compiler I used while making the timings. Since then, Convex has released new versions (1.6 and 1.7) of their Fortran compiler which fixed these problems. The table below is the result of retiming the 1024 complex test problem after the abovementioned corrections. For the Pease long-vector algorithm the additional 13 msec is for table generation with CANGLE. I emphasize these timings are for the simple Fortran codes I published in SEP-44. Convex has recently provided SEP with a hand-coded, optimized variant of the Pease algorithm that runs in 3 msec or five times faster than the corresponding Fortran timing given below.

Algorithm	Sort	Combine	Total
Cooley-Tukey	18	56	74
CT/loop invert	18	17	35
Gentleman-Sande	19	67	86
Pease	19	66	85
Pease/long vec	19	8+13	40
" + loop inv	7	8+13	28
Stockham			66
" + loop inv			20

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368

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```
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  40  50      60  70
250  30                80  360
240  20                90  370
      10  1    110  100
         170
200  160  120   460  420  380
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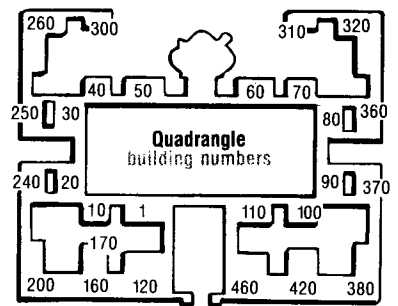
Information
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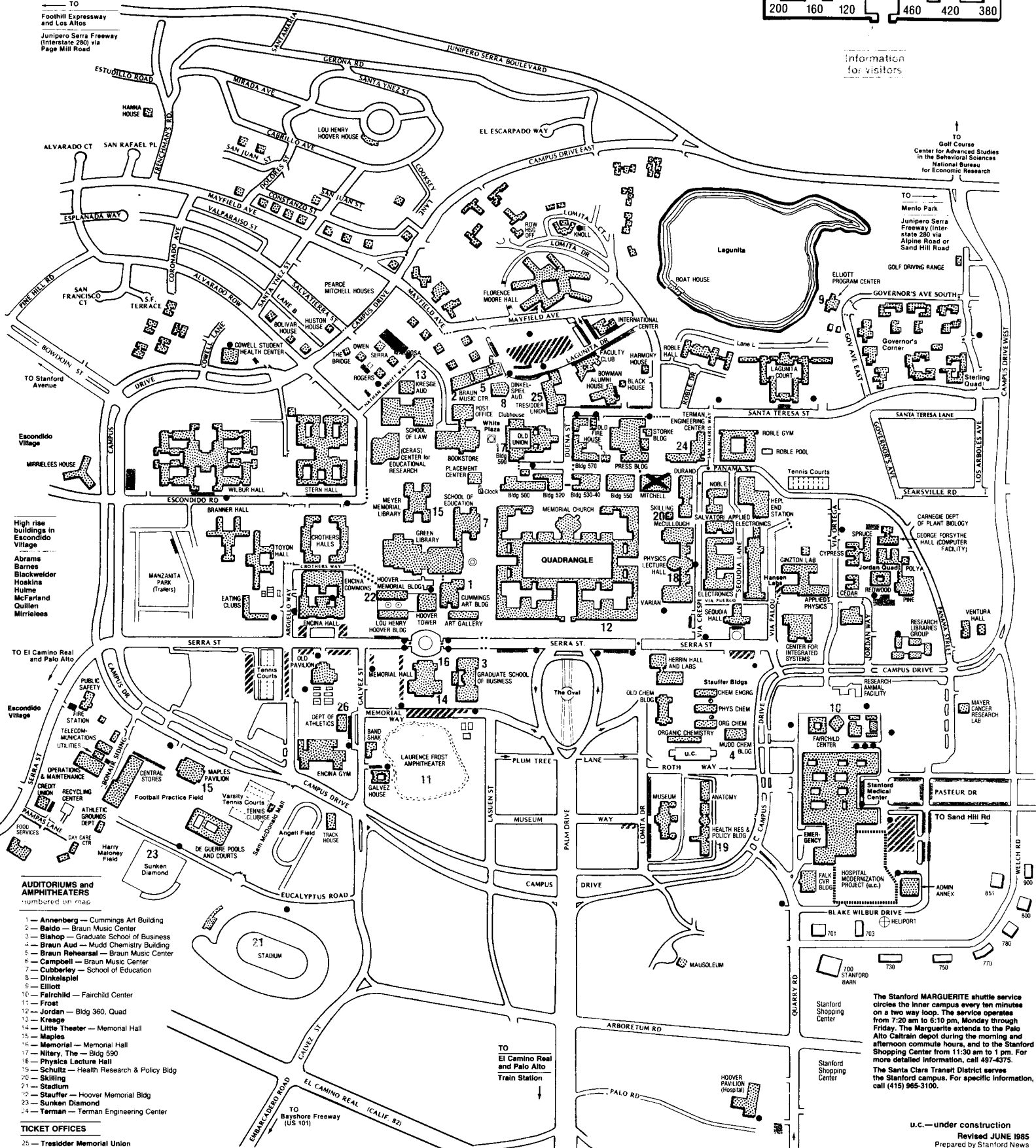
TO
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and Los Altos

Junipero Serra Freeway
(Interstate 280) via
Page Mill Road

ESTUDILLO ROAD
MIRADA AVE
GERONA RD
JUNIPERO SERRA BOULEVARD
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SANTA YNEZ ST
EL ESCARPADO WAY

HANNA HOUSE
LOU HENRY HOOVER HOUSE
CABRILLO AVE

ALVARADO CT   SAN RAFAEL PL
SAN JUAN ST
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ESPLANADA WAY
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LOOKSEY LANE

TO
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Junipero Serra
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state 280 via
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BOOKSTORE
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Clubhouse
PLACEMENT CENTER
Clock
Bldg 500
Bldg 500   Bldg 520   Bldg 530-40   Bldg 550
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STORKE BLDG
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DE GUERRE POOLS AND COURTS
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FALK CVR BLDG
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2 — **Baldo** — Braun Music Center
3 — **Bishop** — Graduate School of Business
4 — **Braun Aud** — Mudd Chemistry Building
5 — **Braun Rehearsal** — Braun Music Center
6 — **Campbell** — Braun Music Center
7 — **Cubberley** — School of Education
8 — **Dinkelspiel**
9 — **Elliott**
10 — **Fairchild** — Fairchild Center
11 — **Frost**
12 — **Jordan** — Bldg 360, Quad
13 — **Kresge**
14 — **Little Theater** — Memorial Hall
15 — **Maples**
16 — **Memorial** — Memorial Hall
17 — **Nitery, The** — Bldg 590
18 — **Physics Lecture Hall**
19 — **Schultz** — Health Research & Policy Bldg
20 — **Skilling**
21 — **Stadium**
22 — **Stauffer** — Hoover Memorial Bldg
23 — **Sunken Diamond**
24 — **Terman** — Terman Engineering Center

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25 — **Tresidder Memorial Union**
26 — **Department of Athletics**