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Introduction

The Solid-State Circuits Society is the IEEE's newest society. It officially started on 1/1/97, having evolved from the Solid-State Circuits Council. The Council was formed 8/25/70, although the major activities taken over by the Council preceded that date; the first International Solid-State Circuits Conference was held in 1954, and the Journal of Solid-State Circuits (JSSC) started in 1966. The Council was originally formed from the Circuit Theory Group because its founding members felt the need for an entity which dealt with the practical aspects of design and application of transistor circuits (which then led to LSI, VLSI, and beyond). This emphasis on the practical aspects of circuits and chip design has remained the focus of the Council/Society to the present. The final seven member societies of the Council were CAS, CS, COMS, CPMT, EDS, LEOS, and MTTS.

A. FOI/Mission -- 1996

The design, implementation and application of solid-state integrated circuits.

This field of interest was initially adopted in May, 1996, and has not been changed. It was intentionally made very simple, straightforward, and comprehensive. The Society is interested in all aspects of solid-state circuits: the design, testing, and application of circuits and subsystems, as well as closely related topics in device technology and circuit theory. It focuses on industrial, technical, and scientific applications, in addition to other activities that contribute to or utilize the techniques or products of the field as the art develops, with the main focus on implementing working circuits/chips/systems for practical applications.

Position in IEEE

The Solid-State Circuits Society serves a unique community of IEEE members whose interests and skills focus on the practical engineering issues faced in the design and implementation of solid-state circuits. Since the Society was recently formed from a Council, it obviously has significant complementary interests with a number of other IEEE societies. This overlap is largely the consequence of the pervasiveness of integrated circuits as an enabling technology for much of modern electronics. The Society retains, and will continue to foster, close links with the seven Council-member societies; indeed the transition plan in the Bylaws provided for the Council societies to be represented on the SSCS AdCom for the first two years of the Society’s existence (until 12/31/98), and many of the new Society chapters are joint chapters with former Council-member societies.

Position in the Technical World

SSCS is the premier organization in the world for solid-state circuit designers, both analog and digital. Through its meetings and publications, the Society has the strongest impact of any professional society in the field. The International Solid-State Circuits Conference is the venue of choice for announcements in leading-edge technical developments in circuits and chips; papers on the technical aspects of major new products in circuits/chips are picked up by such national papers as the Wall Street Journal, the New York Times, and USA Today, as well as local papers. Both publications and meetings stress leading-edge practical results, and in general (though not always), designs must have been implemented to be accepted. Other professional societies have interest in circuits, such as the IEE in the U.K., the IEICE in Japan, and the IEEE Circuits and Systems Society, but the SSCS is unique in its world-wide position among practical designers.

Mixture of Theoretical, Practical, Manufacturing.

As noted above, the focus of the Society is on practical implementation of leading-edge circuits and chips. This necessarily includes manufacturing aspects, e.g., test and design for yield. The theory behind new circuits is covered, but the more academic far reaches of circuit theory is generally left to CAS and others.
B. Finances

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>$654k</td>
<td>$671k</td>
<td>$2,051k</td>
<td>$1,043k</td>
<td>$1,551k</td>
<td>$1,995k</td>
<td>$2,136k</td>
</tr>
<tr>
<td>Expenses</td>
<td>$461k</td>
<td>$477k</td>
<td>$1,579k</td>
<td>$829k</td>
<td>$1,264k</td>
<td>$2,138k</td>
<td>$2,271k</td>
</tr>
<tr>
<td>Reserves</td>
<td>$1,246k</td>
<td>$1,435k</td>
<td>$1,907k</td>
<td>$2,120k</td>
<td>$2,408k</td>
<td>$2,696k</td>
<td>$2,553k</td>
</tr>
<tr>
<td>Surplus</td>
<td>$189k</td>
<td>$189k</td>
<td>$472k</td>
<td>$213k</td>
<td>$288k</td>
<td>($143)</td>
<td>($135)</td>
</tr>
</tbody>
</table>

Table 1: Five year history of Society financial actuals and budgets (italicized) (* are Council figures)

Financial goals over next 2-5 years?

The SSCS finances are excellent, with reserves well over a single year's expenses. Concern has been raised in AdCom that the reserves have grown beyond reason. The 1998 operating budget is negative (as is the most recent year end projection), and the 1999 budget is also negative. There exists considerable opportunity to increase revenues should this ever be necessary, through adjustment of conference or publication fees. In general, however, AdCom is intentionally limiting revenue increases. In addition the budgeting of capital appreciation is being done conservatively. The Society is still understanding the additional costs of being a society (member services, membership promotion, the newsletter, chapter formation and support, distinguished lecture program, etc.), and the establishment of the Executive Office. In addition, the society has undertaken the issuance of CD-ROMS which will cover all issues of the Journal of Solid-State Circuits back to its inception. This entails substantial one-time expense before revenue will be realized.

The 2-5 year financial goal is to maintain the financial strength of the Society, while effectively negotiating the transition from a Council. In general, additional surpluses will be plowed back into increasing member services, rather than increasing the reserves beyond inflation.

<table>
<thead>
<tr>
<th></th>
<th>93 Inc</th>
<th>93 Exp</th>
<th>94 Inc</th>
<th>94 Exp</th>
<th>95 Inc</th>
<th>95 Exp</th>
<th>96 Inc</th>
<th>96 Exp</th>
<th>97 Inc</th>
<th>97 Exp</th>
</tr>
</thead>
<tbody>
<tr>
<td>JSSC</td>
<td>545.3</td>
<td>367.8</td>
<td>554.1</td>
<td>373.3</td>
<td>605.8</td>
<td>359.4</td>
<td>661.5</td>
<td>542.7</td>
<td>635.0</td>
<td>532.4</td>
</tr>
<tr>
<td>Meetings</td>
<td>40.7</td>
<td>1.0</td>
<td>89.6</td>
<td>7.9</td>
<td>1,222.3</td>
<td>1,112.2</td>
<td>202.9</td>
<td>175.0</td>
<td>526.6</td>
<td>526.6</td>
</tr>
<tr>
<td>Committee/Admin</td>
<td>-0.2</td>
<td>75.7</td>
<td>26.7</td>
<td>82.2</td>
<td>0.0</td>
<td>80.5</td>
<td>0.9</td>
<td>70.5</td>
<td>0.0</td>
<td>137.9</td>
</tr>
<tr>
<td>Interest</td>
<td>16.1</td>
<td>0.0</td>
<td>24.6</td>
<td>0.0</td>
<td>39.2</td>
<td>0.0</td>
<td>47.0</td>
<td>0.0</td>
<td>36.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Capital appreciation</td>
<td>50.3</td>
<td>5.4</td>
<td>-28.6</td>
<td>6.5</td>
<td>185.0</td>
<td>5.5</td>
<td>127.0</td>
<td>0.0</td>
<td>289.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>654.3</td>
<td>461.2</td>
<td>670.8</td>
<td>477.1</td>
<td>2,050.8</td>
<td>1,579.2</td>
<td>1,043.4</td>
<td>829</td>
<td>1,551.6</td>
<td>1264</td>
</tr>
</tbody>
</table>

Table 2: Main sources of income and expenses

The Society's largest source of income and expense over the past five years has been the JSSC and meetings. The JSSC surplus has been declining recently because of the increase in page count and the CD-ROM of the previous two years of the JSSC given to each member. Meetings income is primarily driven by the ISSCC. Meeting revenue varies widely from year to year, depending on meeting closings.
Chart 1: 5-year history of SSCS revenue and net revenue.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>JSSC</th>
<th>Meetings</th>
<th>Investment revenue less administrative and committee expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>193.3</td>
<td>177.5</td>
<td>39.7</td>
<td>-14.7</td>
</tr>
<tr>
<td>1994</td>
<td>193.8</td>
<td>180.8</td>
<td>41.7</td>
<td>-91.6</td>
</tr>
<tr>
<td>1995</td>
<td>471.8</td>
<td>246.4</td>
<td>110.1</td>
<td>148.2</td>
</tr>
<tr>
<td>1996</td>
<td>214.4</td>
<td>118.8</td>
<td>3.6</td>
<td>99.2</td>
</tr>
<tr>
<td>1997</td>
<td>286.6</td>
<td>102.6</td>
<td>59.2</td>
<td>187.6</td>
</tr>
</tbody>
</table>

Chart 2: 5-year history of Net Worth and Cash Balance

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Worth</th>
<th>Cash Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>1994</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>1995</td>
<td>1,500</td>
<td>1,500</td>
</tr>
<tr>
<td>1996</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>1997</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>1998</td>
<td>3,000</td>
<td>3,000</td>
</tr>
</tbody>
</table>
C. Governance

C1. Constitution and Bylaws – See attachment

C2. Administrative Committee

The voting Administrative Committee consists of the officers, elected AdCom members, and specific appointed AdCom positions. The AdCom currently meets twice a year, in February in conjunction with the ISSCC, and in August in conjunction with an ISSCC program committee meeting. In steady state, it will have 15 elected members, elected by the membership for staggered three-year terms, with a maximum of two consecutive terms. At the present, there have been two elections, with a total of 10 elected. Results of the third election should be available by the time of the review. Currently, of the 10 elected AdCom members, three are from Region 8 (Belgium, the Netherlands, and Switzerland), and three from Region 10 (Taiwan and Japan). There are six from industry, four from academia. Nominations are from the Nominations Committee, and by petition (which requires only 10 signatures from SSCS members for automatic inclusion on the ballot).

The transition plan for 1/1/97 - 12/31/98 has the seven member societies of the original Solid-State Circuits Council appointing one member to the AdCom, and election of 5 AdCom members by the SSCS membership for each of the first two years (thus, the AdCom had twelve members in 1997, and has 17 members in 1998, before reaching its steady-state level of 15 members in 1999).

Appointed voting members of AdCom are:

<table>
<thead>
<tr>
<th>Standing Committee Chairs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Publications</td>
<td>Meetings</td>
</tr>
<tr>
<td>Nominations</td>
<td>Chapters</td>
</tr>
<tr>
<td>Awards</td>
<td></td>
</tr>
</tbody>
</table>

Region 9 representative

C3. Officers

President and Vice-President:
- Elected by AdCom and the Officers
- Two-year term, cannot be re-elected
- Can be nominated by petition with 3 signatures from AdCom
- Must be past or sitting members of AdCom
- Succession from Vice-President to President is expected, but is not automatic.

Past President
- Two year term upon completion of term as President

Secretary and Treasurer
- Appointed by the President with the advice and consent of AdCom
Table 3: Demographic breakdown of 1998 AdCom by employer and region

<table>
<thead>
<tr>
<th>Members</th>
<th>Industry</th>
<th>Academic</th>
<th>Government</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elected</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Appointed</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>12</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

C4. Technical Committees

The only technical committee at present is the Solid-State Circuits and Technology Committee. It puts on one or two day workshops, generally twice a year, with attendance running between 25 and 150, depending upon location and topic. The meetings are intentionally informal, with substantial time for interaction and discussion.

C5. Chapters

The Society is actively pursuing development of Chapters. At present, there are ten, three formed in 1997 and seven formed so far in 1998:

- Baltimore, MD
- Boston, MA
- Chicago, IL (joint with EDS and CS)
- Finland, Region 8 (joint with SP and CAS)
- Ottawa, Region 7 (joint with CAS and EDS)
- Santa Clara Valley, CA
- Seoul Korea, Region 10 (joint with EDS)
- Tapei, Taiwan
- Tokyo, Japan
- Yugoslavia, Region 8 (joint with EDS)

The Chapters are new, so long term activity cannot be evaluated yet. The first Chapter, in Santa Clara Valley, has been quite active. The AdCom has voted up to $1,000 per chapter to support chapter activities; activities considered fundable include membership promotion, travel allowances for invited speakers to chapter events, and support for student activities for local academic institutions. A proposal/budget must be submitted to receive support funding, and a report must be sent at year end.

D. Membership

With the exception of the Communications Society's large membership increase due to its unique promotion, SSCS is the fastest growing society in the IEEE, with percentage growth consistently in the double figures since its beginning. Prior to the Society formation, the best measure of "membership" was the IEEE member subscriptions to the JSSC. This had been gradually declining, as shown in Table 4. With the formation of the Society, the trend has been reversed, and membership has gone from 9,153 at the beginning of the 1997 to the current membership of 11,609.


1991  10,591  
1992  9,331  
1993  8,054  
1994  *  
1995  7,695  
1996  7,100  

<table>
<thead>
<tr>
<th>Year</th>
<th>Fig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997 beginning</td>
<td>9,153</td>
</tr>
<tr>
<td>1997 end</td>
<td>10,787</td>
</tr>
<tr>
<td>1998 Sept 30</td>
<td>11,609</td>
</tr>
</tbody>
</table>

* no data available due to system conversion

Table 4: 7-year history of JSSC subscriptions. Year end figures

Efforts at getting new members so far have focused around recruiting at conferences, generally joint recruiting efforts with EDS where free membership in both societies is offered along with a free or discounted membership in IEEE. Substantial efforts to recruit new members are made at the ISSCC and the International Electron Devices Meeting (respectively the SSCS and EDS premier conferences) and the VLSI Technology and Circuits Symposia. At ISSCC and IEDM, EDS and SSCS share the cost of a fully-manned experienced recruiting desk and results have been quite successful, with over 700 new members signed up. The results are shown in Table 5. A membership brochure for the Society has just been completed.

<table>
<thead>
<tr>
<th></th>
<th>ISSCC Feb ‘97</th>
<th>IEDM Jan ‘97</th>
<th>ISSCC Feb ‘98</th>
<th>CICC May ‘98</th>
<th>VLSI June ‘98</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discount IEEE membership</td>
<td>½ year free</td>
<td></td>
<td>$25.</td>
<td>$25.</td>
<td>$25.</td>
</tr>
<tr>
<td>Recruiter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Free CD-ROM</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Non-member attendance</td>
<td>1,025</td>
<td>706</td>
<td>921</td>
<td>264</td>
<td></td>
</tr>
<tr>
<td>New members recruited</td>
<td>425</td>
<td>91</td>
<td>243</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Student attendance</td>
<td>52</td>
<td>303*</td>
<td>72*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New students recruited</td>
<td>unknown</td>
<td>25</td>
<td>52</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>% joined</td>
<td>40%</td>
<td>15%</td>
<td>24%</td>
<td>7%</td>
<td>~5%</td>
</tr>
</tbody>
</table>

*Some meetings do not distinguish between members and non-member student registration.

Table 5: Recent member promotions at conferences.

Chart 3 shows membership by region. 37% of the membership is from outside the U.S. Chart 4 gives a break-down of membership grades. Table 6 indicates that a very high percentage of SSCS members belong to other Societies; only 14% belong only to SSCS.
SSCS membership is an excellent value. For the dues of $14, the member receives the JSSC, the CD-ROM of the previous two years of the JSSC, on-line access to the JSSC, and the quarterly newsletter. SSCS dues are the lowest of any IEEE Society which has a technical publication bundled into the dues. In addition, in early 1999 members will be able to purchase the two CD-ROM set covering the JSSC issues for 1989-1994 for $35.

Despite good success in attracting new members, it appears there is a large number of potential additional members in the industry, both in the U.S. and around the world. The Society continues to try to reach them. There has been no attempt to survey member satisfaction to date. The Council did survey subscribers to the Journal about the formation of a Society in 1995.

E. Meetings

The International Solid-State Circuits Conference is the Society's flagship meeting. The technical sessions last three days with additional days for tutorials and short courses. It is fully sponsored by SSCS, and is held every February in San Francisco. Contracts are in place through 2004. Many attendees drive up from Silicon Valley, enhancing attendance. The meeting is the pre-eminent meeting in Solid-State Circuits in the world, attracting attendees and attention from around the world. It is the venue of choice for reporting leading edge accomplishments. For example, every new level of DRAM integration has been first reported at ISSCC, starting with 1K DRAM chips in 1970. Similarly, new generations of microprocessors by leading manufacturers, such as Intel, are generally introduced in very well attended technical presentations at the ISSCC. Table 7 reflects the continuing success of
the meeting, and shows strong increases in attendance and paper submission over the last 5 years. The meeting has tutorials and short courses, but does not have exhibits. The registration fee is actively managed to avoid generating undue surpluses. For 1998, 1/3 of the attendees were from outside the US; paper submission by geography is given in Table 8. 70% of the accepted papers were from industry, 18% from academia, and 12% from collaborations or government labs. The publications of the Conference are unique; the Digest is fully typeset, not camera-ready and a Slide Supplement, containing copies of all the slides of each talk, is mailed to attendees within a month of the conference.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>3,242</td>
<td>3,030</td>
<td>2,740</td>
<td>2,343</td>
<td>2,107</td>
</tr>
<tr>
<td>Number of papers</td>
<td>159</td>
<td>149</td>
<td>156</td>
<td>123</td>
<td>110</td>
</tr>
<tr>
<td>Acceptance rate</td>
<td>54%</td>
<td>52%</td>
<td>52%</td>
<td>56%</td>
<td>49%</td>
</tr>
<tr>
<td>Surplus</td>
<td>$42k</td>
<td>$186k</td>
<td>$73k</td>
<td>$75k</td>
<td>$34k</td>
</tr>
</tbody>
</table>

Table 7: 5-year history of the ISCC.

<table>
<thead>
<tr>
<th>Source for 1998</th>
<th>Submitted</th>
<th>Accepted</th>
<th>% accepted</th>
<th>% of program</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>132</td>
<td>71</td>
<td>54</td>
<td>48</td>
</tr>
<tr>
<td>Europe</td>
<td>68</td>
<td>24</td>
<td>35</td>
<td>18</td>
</tr>
<tr>
<td>Far East</td>
<td>80</td>
<td>50</td>
<td>63</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 8: Geographic distribution of ISSCC '98 paper submissions.

The Custom Integrated Circuits Conference was financially sponsored by the IEEE EDS through 1998, with Technical Cooperation by SSCS; a CICC representative was a member of the SSCC AdCom. In 1999, SSCS takes over full financial sponsorship, with EDS as a Technical Co-sponsor. In recent years, the conference has been held in California. The CICC schedules two days for exhibitions of semiconductor manufacturers, software tool suppliers, design service houses, etc. Conference history is given in Table 9. The conference attendance has remained flat over the last five years, while paper submission has leveled off after an initial decline.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>644</td>
<td>682</td>
<td>645</td>
<td>727</td>
<td>642</td>
</tr>
<tr>
<td>Number of papers</td>
<td>127</td>
<td>126</td>
<td>113</td>
<td>145</td>
<td>170</td>
</tr>
<tr>
<td>Acceptance rate</td>
<td>55%</td>
<td>54%</td>
<td>49%</td>
<td>34%</td>
<td>57%</td>
</tr>
<tr>
<td>Surplus</td>
<td>$35k</td>
<td>$39k</td>
<td>$41k</td>
<td>$50k</td>
<td>$77k</td>
</tr>
</tbody>
</table>

Table 9: 5-year history of the CICC.

The Symposium on VLSI Circuits is held in the U.S. (Honolulu) or Japan (Kyoto) on alternate years. It is a 2½ day meeting. Financial sponsorship alternates with the host country; in Japan it is sponsored by the Japan Society of Applied Physics with SSCS Technical Cooperation. The IEICE of Japan has cooperative sponsorship. Table 10 shows the strong attendance growth of the meeting over the last 5 years, and Table 11 is a break-down of the attendance by IEEE Region. The number of papers presented is generally limited by the desire to maintain no more than 2 parallel sessions. 1996 had a very large number of submissions and a very low acceptance rate, even with the increased number of papers presented. The projected loss in 1998 is due to higher than expected expenses and lower attendance, mainly from Region 10 and presumably due to the financial downturn. Meeting finances are negatively impacted because of committee expenses on alternate years when the meeting is in Japan and there is no conference revenue. There are no exhibits, and there is a short course preceding the meeting.
--- | --- | --- | --- | --- | ---  
Attendance | 362 | 504 | 424 | 412 | 325  
Number of papers | 70 | 53 | 72 | 55 | 58  
Acceptance rate | 31% | 42% | 31% | 47% | 38%  
Surplus | n/a | $39k | $41k | $50k | $77k  

Table 10: 5-year history of the Symposium on VLSI Circuits.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regions 1-6</td>
<td>116</td>
<td>197</td>
<td>91</td>
<td>155</td>
</tr>
<tr>
<td>Region 7</td>
<td>8</td>
<td>10</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Region 8</td>
<td>12</td>
<td>22</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>Region 10</td>
<td>365</td>
<td>193</td>
<td>297</td>
<td>157</td>
</tr>
</tbody>
</table>

Table 11: Geographic distribution of attendance at the Symposium on VLSI Circuits.

**Solid-State Circuits and Technology Committee Workshops** The Solid-State Circuits and Technology Committee Workshops are informal one or two day meetings focused on a specific topic. No Digest is published. Significant time is allotted for audience participation and discussion. They are normally held in February with ISSCC and in October, but other times are considered. Recent meetings are listed in Table 12.

<table>
<thead>
<tr>
<th>SSCTC Workshops</th>
<th>Location</th>
<th>Topic</th>
<th>attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 98</td>
<td>Washington DC</td>
<td>Low Temperature Electronics</td>
<td>25</td>
</tr>
<tr>
<td>February 98</td>
<td>San Francisco</td>
<td>Embedded DRAMS</td>
<td>140</td>
</tr>
<tr>
<td>October 97</td>
<td>Atlanta</td>
<td>Clock Distribution Networks</td>
<td>63</td>
</tr>
<tr>
<td>February 97</td>
<td>San Francisco</td>
<td>RF Design</td>
<td>30</td>
</tr>
<tr>
<td>February 97</td>
<td>San Francisco</td>
<td>Microprocessors</td>
<td>80</td>
</tr>
<tr>
<td>October 96</td>
<td>Laguna Beach</td>
<td>DSP Systems</td>
<td>75</td>
</tr>
<tr>
<td>February 96</td>
<td>San Francisco</td>
<td>CMOS Imaging Technology</td>
<td>140</td>
</tr>
<tr>
<td>February 95</td>
<td>San Francisco</td>
<td>Merged DRAM/Logic</td>
<td>150</td>
</tr>
</tbody>
</table>

Table 12: Recent SSCTC Workshops.

Technically co-sponsored meetings are listed in Table 13.

- Advanced Research in VLSI (ARVLSI)
- Application Specific Integrated Circuits (ASIC) Conference
- Bipolar/BiCMOS Technology Meeting (BCTM)
- European Solid-State Circuits Conference (ESSCIRC)
- Gallium Arsenide Integrated Circuits Symposium (GASIC)
- International Conference on VLSI and CAD (ICVC)
- International Symposium on VLSI, Tech, Systems and Applications
- International Workshop on Mixed Signal Integrated Circuit Design (MSICD)

Table 13: SSCS technically co-sponsored meetings

**F. Publications**
Two publications are included in the Society membership - the Newsletter and the Journal of Solid-State Circuits. In addition to the print version, JSSC is available on-line through OPeRa, and a CD-ROM of the previous two years of JSSC is given to every member.

The Journal of Solid-State Circuits is the premier technical publication in solid-state circuits in the world. The 1996 Journal Citation Report ranks JSSC as 14th of 176 of all electrical and electronic Journals ranked, with 263 articles cited in that year. These articles were cited 2,840 times, with a half life of 5.9 years (the half-life indicates that almost 6 years after an article is cited with its greatest frequency, it is still being cited at half that peak frequency). No other publication comes close to the breadth, depth, and quality of the JSSC. It publishes papers of broad interest in solid-state circuits, relating to the analysis, design, and performance of solid-state circuits. The circuits may be analog, digital, mixed signal, microwave, optoelectronic, etc. in nature, with integrated circuits and VLSI of principle interest. Emphasis is on practical realization and application.

Table 14 gives the 5-year history of the Journal pages. Member subscriptions show a strong increase when the Society was formed in 1997; prior to that subscriptions for members had been declining. Non-member subscriptions show a gradual decline.

Table 14: 5-year history of JSSC (year end figures)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of member subscribers</td>
<td>10,787</td>
<td>7,100</td>
<td>7,695</td>
<td>*</td>
<td>8,054</td>
</tr>
<tr>
<td>Non-member individual subscriptions (excl. APP)</td>
<td>782</td>
<td>792</td>
<td>823</td>
<td>832</td>
<td>912</td>
</tr>
<tr>
<td>Pages printed</td>
<td>2157</td>
<td>2117</td>
<td>1652</td>
<td>1730</td>
<td>1498</td>
</tr>
<tr>
<td>Budgeted</td>
<td>2000</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
<td>1800</td>
</tr>
<tr>
<td>Average pages per issue</td>
<td>180</td>
<td>176</td>
<td>138</td>
<td>144</td>
<td>125</td>
</tr>
<tr>
<td>Issues per year.</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

The Journal has aggressively attacked publication delay with excellent results. For special issues, the delay from occurrence of the conference to the publication of papers from the conference is less than a year, and from receipt of the manuscript to publication probably averages 7-8 months. These papers do go through the full review process, and are extended and updated versions of the papers presented at the respective conferences. For normal submitted papers, the editorial board is trying to reach a goal of 90 days to first action and reducing the time for author revision to under 90 days. An average time to first action of 105 days has been achieved, and the delay between receipt and publication is 1 year. The Journal carries no backlog of articles. The Journal is published so it is received early in the month in which it is scheduled. Table 15 shows submission and acceptance statistics.

Table 15: JSSC submission and acceptance statistics. The table does not include the special issue papers. The acceptance ratio for special issue papers is estimated to be 80-90%.

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>1996</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Papers Submitted</td>
<td>224</td>
<td>222</td>
<td>234</td>
</tr>
<tr>
<td>Acceptance/Rejection Ratio</td>
<td>50%</td>
<td>50%</td>
<td>43%</td>
</tr>
</tbody>
</table>

Half the issues of the Journal are special issues, presenting extended versions of papers presented at major conferences. The special issues have been aligned to alternate between regular and special issues, except for the two ISSCC issues, in order to minimize publication delay for regular papers. The special issues schedule is listed in Table 16.
Table 16: JSSC special issues

<table>
<thead>
<tr>
<th>Region</th>
<th>1-6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Papers</td>
<td>83</td>
<td>9</td>
<td>74</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>4%</td>
<td>32%</td>
<td>&lt;1%</td>
<td>29%</td>
</tr>
</tbody>
</table>

Table 17: Geographic distribution of JSSC papers for November 1997 to October 1998

The Society Newsletter is published quarterly, currently running between 12 and 20 pages. It covers Society news and activities, previews of up-coming conferences, high level technical highlights of conferences held, reports on Society business and finances, biographies of Fellow and award recipients, and chapter activites. It does not have technical articles. Publication of the Newsletter is being moved into the IEEE, with an expected improvement in layout and publication process.

G. Globalization Efforts

The solid-state circuits industry is highly global, with strong communities in the US, Europe, and Asia. The Society reflects that globalization. A third of the membership is from outside the US; there is strong participation from Regions 7 - 10 both as attendees and authors at conferences, and in authorship of Journal papers. Half of the elected AdCom membership comes from Regions 8 and 10. The Bylaws have a provision for appointed voting representatives of Regions 8, 9, and 10 in AdCom if necessary; with the present make-up of the AdCom, it was felt that only Region 9 needed such an appointment. The Constitution and Bylaws have no other requirements for geographic-based nomination or representation, although the Nominations Committee has been careful to include a significant number of non-US candidates on the slate for AdCom. Half of the chapters are from outside the US, and there is a European Chapter representative in Belgium with the express purpose of developing new chapters in Europe. The Symposium on VLSI Circuits alternates between the US and Japan, and the Society Technically Co-sponsors ESSCIRC, the major European circuits conference, and the International Symposium on VLSI Technology, Systems, and Applications, the major Taiwan conference dealing with circuits. In general, the meeting technical program committees have Asian and European sub-committees to ensure strong submission and representation from outside the US.

H. Competition/Cooperation - US and Non-US

The major competition for SSCS in the US is within IEEE, and is most notably CAS. However, it is also the best example of co-operation, with the Societies exchanging AdCom members, having joint chapters, and regularly interacting. CAS ended up strongly supporting the change of Solid-State Circuits from a Council to a Society (they had initially proposed SSC become an autonomous part of CAS). There is also interaction with other IEEE societies, and SSCS does have joint chapters and has joint membership efforts with others, particularly EDS. SSCS looks to joint chapters with other societies as the best way to increase the number of SSCS chapters.

Outside of IEEE, there are some national societies which deal in circuits, most notably the IEE in England and the IEICE in Japan. None of these societies have the impact and international presence
of SSCS. The Society does not have any sister society agreements; this is a possible area of international co-operation which the Society must consider.

The JSSC is the premier circuits publication in the world. The major competition comes from free industry publications such as Electronic Design and Electronic Design News. SSCS has the leading circuits meetings in the world; ISSCC is the premier meeting and CICC and VLSI Circuits occupy the next position.

I. Standards

The Society has no standards activity at present. Three different series of IEEE standards are of technical interest to some of the Society members, but these are sponsored by the Computer Society.

- IEEE Standard 1076 series VHSIC Hardware Description Language
- IEEE Standard 1149 series Test Access Port and Boundary Scan
- IEEE Standard 1364 VERILOG Hardware Description Language

The Society will consider becoming more involved in standards activities.

J. Education

The SSCS Educational Activities Committee had its first meeting on August 1998, in conjunction with the AdCom meeting held on that day. As a result of the Committee's recommendations, the Society is co-sponsoring, with the Circuits and Systems Society, a series of Professional Development Courses on Video and Wireless Communications offered by the Imperial College, London and Mahanakorn University of Technology, Thailand.

In February 1999 the Society will video-tape the SSC Technical Committee Workshop on RF Passive Components, one of a twice yearly series initiated in 1995. See table 12 in section E for details about the history of topics for these workshops. The Education Committee will make this workshop record available as a multimedia product on CD-ROM.

In June 1998 the Society initiated its Distinguished Lecturers Program with 13 Distinguished Lecturers (see attachment). AdCom established funding to support this program at its August 28th meeting this year.

The Society reviews books and sponsors books in the Solid-State Circuits field. The Society is sponsoring three books at present. It has not been pro-active with the IEEE Press.
K. Long Term Goals/New Directions

Prior to becoming a society, the long term planning was focused on becoming a society. Since becoming a society, the long term planning has taken a back seat to the formation of the Society and establishing the Executive Office operation. A new Long Range Planning Committee has just been formed, with the Vice-President as the Chair, which will be the vehicle for future planning.

New technical areas are recognized and stimulated in two ways:

1) through the conferences, which have technical program committees well plugged into the technical world. In particular, the ISSCC technical program committee has over 100 members, including an Asian and European sub-committees, and a New Technology Directions Steering Committee which is charged with understanding and bringing into the conference new technical areas; specific technical session are given over to the committee. In general, program committees are well attuned to digging out papers in new areas.

2) The Solid-State Circuits and Technology Committee workshops are focused meetings that deal with new topics. At least one new conference was started as the result of an SSCTC workshop. In addition, the Meetings Committee looks at new topics for possible meetings or sessions at an existing meeting. Since many of the meetings result in papers in the *Journal*, new ideas are quickly published in an archival publication.

The major long term goals are:

- Continue to expand our membership, achieving substantially more penetration into the solid-state circuits community.
- Establish chapters around the world. A goal of 40-50 sponsored or co-sponsored chapters within 5 years seems a reasonable goal.
- Maintain the financial strength of the Society, though not necessarily increasing reserves above inflation. In fact, some controlled reduction of reserves to implement the next goal would be acceptable.
- Determine/understand the activities and services to members which will make the Society more attractive to members and non-members, and will serve the solid-state circuits community/industry world-wide. Implement these services/activities as appropriate.
- Improve dialog with members through surveys, e-mail chats, regular communication with chapters, etc.
- Continue the Society leadership in technical information dissemination and interchange through its meetings, publications, and activities. While the Society is well focused on the practicing engineer, it will be important to work out ways of becoming even more relevant to the working designer.

These goals will be implemented through the actions of the Long-Range Planning Committee, the appropriate SSCS Standing Committee, and the AdCom. The Society needs to put such plans in place.

The 5-year question:

In five years, the Society will continue to be the leading purveyor of technical information in the solid-state circuits community, with a substantially larger membership and a much larger number of chapters. I expect that we will continue to focus on the core meetings and publication we have, but with some increase in the number of meetings and publications. The topics covered in those entities will be noticeably different than those of today. We hope to achieve far more penetration into the community, and expand our world-wide activities.
L. Interactions with TAB

The role of the Society in TAB is similar to the typical IEEE Society. We have the advantage of being one of the larger societies, and one of the strongest financially, but experience teaches that this is not a major factor in providing leadership or of lack of it in TAB. The Society will contribute to TAB, and through it to IEEE as much as it can.

TAB has been a great help financially through the ASPP, and in general the support and initiatives from TAB and TAD are very useful. OPeRa and electronic publishing are good examples. The TAB meetings also provide a valuable opportunity to meet and interact with other society presidents, and to learn what is going on in the Institute at a higher level. TAB could be more useful if it facilitated exchange and discussion of new ideas and best practices on specific topics of interest to presidents. TAB meetings are generally interesting, but do not seem to make the best use of the time.

M. Summary

Greatest successes:

- Meetings - ISSCC is the best circuits conference in the world, and VLSI Circuits and CICC are the nest best.
- The Journal of Solid-State Circuits - clearly head and shoulders above any other technical publication in the field. The average delay from receipt to publication is outstanding.
- The increase in membership - reversed declining interest, and up almost 4500 (almost 60%) from the low point in 1996.
- Finances - the Society has excellent reserves and good control of its budget.
- Globalization: strong world-wide participation through membership, authorship of papers in the publications and meetings, and elected members of AdCom.

Biggest opportunities:

- Membership - there is still a large part of the solid-state circuits community that we do not reach.
- Chapters - we should be able to have as many chapters as EDS or MTT (both over 50), and chapters would serve as a source of new members.
- Both the Journal and the old ISSCC Digests contain valuable archival information. We should make this available to the community in CD-ROM (and then Web and/or DVD) format.
- Educational activities - a great opportunity for short courses, tutorials, continuing education, and the like.

Biggest weaknesses:

- Chapters - we need to greatly expand the number of chapters, and then support them appropriately.
- Awards - the number of nominations for Fellow and the Solid-State Circuits Technical Field Award has been disappointing. We need to increase their number.
- Long Term Planning - this is just getting re-started after a long hiatus.
- Involvement of elected AdCom members - the attendance of some elected AdCom members has been spotty, and in any case, they need to become more involved in the operation of the Society. This will be addressed by having each elected AdCom member have a portfolio of activities for which they are responsible.
- Educational Activities are just getting started, and need to get up to speed.
Comments/recommendations:

SSCS has developed remarkably well in its almost two years as a Society. There is still a lot of room for improvement, and the Society is facing its problems and opportunities. Fortunately, the basics of the Society are excellent - a strong and growing membership, solid finances, industry leading publication and conferences, and world-wide recognition and impact. We must not become complacent (a problem that haunted the Council from time to time in the past), and must continually explore for new and effective means to move forward the Society, the IEEE, and the industry. The influx of new people on the AdCom, voted in by the membership, should dispel any lingering concern about an "old boys club", which was mentioned in the last review of the Council.
Attachments

Constitution and Bylaws

Distinguished Lecturers