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| --- | --- | --- | --- |
| 1 | 00:00:00,480 --> 00:00:04,460 | 我现在参加RISC-V中国的峰会 |  |
| 2 | 00:00:04,500 --> 00:00:06,260 | 2021年的峰会 |  |
| 3 | 00:00:07,300 --> 00:00:10,820 | 首先向RISC-V |  |
| 4 | 00:00:10,960 --> 00:00:12,860 | 以及各位朋友问好 |  |
| 5 | 00:00:13,634 --> 00:00:16,635 | 这个峰会在中国 |  |
| 6 | 00:00:16,636 --> 00:00:17,695 | 现在这时候开始 |  |
| 7 | 00:00:18,015 --> 00:00:20,875 | 我觉得是这几次规模最大的 |  |
| 8 | 00:00:20,876 --> 00:00:22,875 | 线上线下加在一起 |  |
| 9 | 00:00:23,387 --> 00:00:25,325 | 也许将来在我们历史 |  |
| 10 | 00:00:25,421 --> 00:00:28,905 | 发展里程之中也是重要的一步 |  |
| 11 | 00:00:30,865 --> 00:00:32,709 | 我可以25分时间 |  |
| 12 | 00:00:32,709 --> 00:00:34,465 | 给大家介绍一下 |  |
| 13 | 00:00:34,465 --> 00:00:36,785 | 关于中国在西方发展那些观点 |  |
| 14 | 00:00:36,885 --> 00:00:38,245 | 供大家参考 |  |
| 15 | 00:00:38,870 --> 00:00:40,310 | 不对的请大家指正 |  |
| 16 | 00:00:41,621 --> 00:00:45,950 | 我们从整个来看 |  |
| 17 | 00:00:45,951 --> 00:00:47,210 | 开始想我就说 |  |
| 18 | 00:00:47,210 --> 00:00:47,853 | 开源 |  |
| 19 | 00:00:47,853 --> 00:00:50,530 | 大家知道开源的重要性很大 |  |
| 20 | 00:00:50,953 --> 00:00:52,900 | 现在我们的一些风险 |  |
| 21 | 00:00:52,900 --> 00:00:54,509 | 根据数据分析 |  |
| 22 | 00:00:54,541 --> 00:00:58,400 | 我们说软件技术之中 |  |
| 23 | 00:00:58,580 --> 00:01:00,120 | 特别是新一代信息技术中 |  |
| 24 | 00:01:00,121 --> 00:01:03,620 | 开源的比重大概是80% |  |
| 25 | 00:01:03,920 --> 00:01:05,640 | 传统一些软件当然我们知道 |  |
| 26 | 00:01:05,641 --> 00:01:06,860 | 开源比重没那么大 |  |
| 27 | 00:01:07,300 --> 00:01:08,880 | 但是我们新一代信息技术 |  |
| 28 | 00:01:08,881 --> 00:01:10,480 | 像现在我们的AI |  |
| 29 | 00:01:11,060 --> 00:01:11,821 | 物联网 |  |
| 30 | 00:01:11,821 --> 00:01:13,800 | 大数据之类的 |  |
| 31 | 00:01:13,800 --> 00:01:14,556 | 云计算等等 |  |
| 32 | 00:01:14,556 --> 00:01:16,260 | 大概80%左右 |  |
| 33 | 00:01:17,287 --> 00:01:20,905 | 我这里加了一个我们的企业贡献 |  |
| 34 | 00:01:21,565 --> 00:01:23,445 | 对业界的贡献的 |  |
| 35 | 00:01:23,446 --> 00:01:24,925 | 一年两年的比重不好算 |  |
| 36 | 00:01:25,125 --> 00:01:27,245 | 我们大概看招收人员 |  |
| 37 | 00:01:27,565 --> 00:01:30,025 | 就像华为这些大公司统计 |  |
| 38 | 00:01:30,325 --> 00:01:30,885 | 互联网公司 |  |
| 39 | 00:01:30,965 --> 00:01:33,337 | 不用说大概硬件和软件人员 |  |
| 40 | 00:01:33,337 --> 00:01:34,145 | 比例8：2 |  |
| 41 | 00:01:35,106 --> 00:01:36,656 | 很简单的算术 |  |
| 42 | 00:01:36,656 --> 00:01:38,465 | 一般新一代信息技术 |  |
| 43 | 00:01:39,505 --> 00:01:40,962 | 这些企业指数 |  |
| 44 | 00:01:40,962 --> 00:01:42,167 | 我们开源的贡献 |  |
| 45 | 00:01:42,167 --> 00:01:44,205 | 大概是达到60%左右 |  |
| 46 | 00:01:44,405 --> 00:01:45,665 | 不是很准确 |  |
| 47 | 00:01:45,665 --> 00:01:46,605 | 我相信 |  |
| 48 | 00:01:47,120 --> 00:01:47,993 | 不会太低估 |  |
| 49 | 00:01:47,993 --> 00:01:49,040 | 也不会太高估 |  |
| 50 | 00:01:49,200 --> 00:01:50,934 | 大概6成左右的贡献 |  |
| 51 | 00:01:50,934 --> 00:01:51,780 | 开源软件 |  |
| 52 | 00:01:51,860 --> 00:01:54,380 | 所以我们建议干一些有关方面 |  |
| 53 | 00:01:54,381 --> 00:01:57,200 | 一些领导部门反应要重视开源 |  |
| 54 | 00:01:58,225 --> 00:02:00,225 | 我这里说谁拥抱了开源 |  |
| 55 | 00:02:00,365 --> 00:02:02,685 | 就拥抱了信息技术的未来 |  |
| 56 | 00:02:02,725 --> 00:02:04,403 | 某种上我当时写的 |  |
| 57 | 00:02:04,403 --> 00:02:05,845 | 谁主导了开源 |  |
| 58 | 00:02:06,065 --> 00:02:08,406 | 谁就主导了技术 |  |
| 59 | 00:02:08,406 --> 00:02:10,505 | 他们改的缓和一点 |  |
| 60 | 00:02:10,960 --> 00:02:12,340 | 但是这意思没错 |  |
| 61 | 00:02:12,440 --> 00:02:13,180 | 开源的重要性 |  |
| 62 | 00:02:13,800 --> 00:02:15,820 | 未来就在开源之中 |  |
| 63 | 00:02:16,360 --> 00:02:17,460 | 很重要的一个代表 |  |
| 64 | 00:02:17,461 --> 00:02:18,768 | 就是说我们 |  |
| 65 | 00:02:18,768 --> 00:02:20,720 | 现在他走到了 |  |
| 66 | 00:02:22,016 --> 00:02:24,620 | 大家看到大数据 |  |
| 67 | 00:02:24,621 --> 00:02:26,200 | 各种技术的比重 |  |
| 68 | 00:02:26,533 --> 00:02:27,600 | 我刚才说了 |  |
| 69 | 00:02:27,660 --> 00:02:28,950 | 现在我们看到 |  |
| 70 | 00:02:28,950 --> 00:02:30,660 | 开源装的硬件的阶段 |  |
| 71 | 00:02:31,062 --> 00:02:31,980 | 还特别重要 |  |
| 72 | 00:02:32,734 --> 00:02:35,460 | 我们中国开源有什么问题 |  |
| 73 | 00:02:35,600 --> 00:02:37,820 | 我们毫无疑问是世界的开源大国 |  |
| 74 | 00:02:38,400 --> 00:02:41,200 | 大概我们从一些统计 |  |
| 75 | 00:02:41,693 --> 00:02:45,640 | 从这些参与了统计 |  |
| 76 | 00:02:45,700 --> 00:02:47,360 | 中国的贡献 |  |
| 77 | 00:02:47,420 --> 00:02:48,975 | 他肯定是美国 |  |
| 78 | 00:02:48,975 --> 00:02:49,740 | 全球人 |  |
| 79 | 00:02:50,620 --> 00:02:53,065 | 作为中国在开源界的贡献 |  |
| 80 | 00:02:53,065 --> 00:02:53,700 | 仅次于美国 |  |
| 81 | 00:02:54,018 --> 00:02:55,795 | 参与和贡献 |  |
| 82 | 00:02:56,655 --> 00:02:58,415 | 但是我们知道 |  |
| 83 | 00:02:58,416 --> 00:03:00,235 | 我们这个开源 过去 |  |
| 84 | 00:03:00,715 --> 00:03:03,415 | 我们正说开源大国不是开源强国 |  |
| 85 | 00:03:04,040 --> 00:03:05,530 | 强国大国什么分别 |  |
| 86 | 00:03:05,530 --> 00:03:06,840 | 因为没有话语权 |  |
| 87 | 00:03:06,841 --> 00:03:08,578 | 比如说中外套路 |  |
| 88 | 00:03:08,578 --> 00:03:10,220 | 我的话有些不多 |  |
| 89 | 00:03:10,221 --> 00:03:13,920 | 我们过去一些还不够重视新事物 |  |
| 90 | 00:03:14,275 --> 00:03:16,175 | 我们当时看到今年的变化 |  |
| 91 | 00:03:16,175 --> 00:03:17,135 | 大家请注意 |  |
| 92 | 00:03:17,136 --> 00:03:19,315 | 我领的就是我们国家 |  |
| 93 | 00:03:19,315 --> 00:03:21,335 | 就十四五计划里面的 |  |
| 94 | 00:03:21,815 --> 00:03:23,601 | 关于一个实施计划 |  |
| 95 | 00:03:23,601 --> 00:03:25,390 | 还有远景规划里头的 |  |
| 96 | 00:03:25,750 --> 00:03:27,761 | 首先把开源写进去了 |  |
| 97 | 00:03:27,761 --> 00:03:29,870 | 要支持输入技术 |  |
| 98 | 00:03:29,871 --> 00:03:31,187 | 开源 设计等 |  |
| 99 | 00:03:31,187 --> 00:03:32,850 | 创新联合体的发展 |  |
| 100 | 00:03:33,305 --> 00:03:36,305 | 完善开源知识产权和RISC-V体系 |  |
| 101 | 00:03:36,306 --> 00:03:37,992 | 鼓励企业开放 |  |
| 102 | 00:03:37,992 --> 00:03:39,317 | 软件源代码 |  |
| 103 | 00:03:39,317 --> 00:03:41,765 | 硬件设计和应用服务 |  |
| 104 | 00:03:42,246 --> 00:03:44,465 | 所以我们知道一个很大的变化 |  |
| 105 | 00:03:44,466 --> 00:03:47,065 | 中国发展到现在新阶段 |  |
| 106 | 00:03:47,640 --> 00:03:48,394 | 新科学 |  |
| 107 | 00:03:48,394 --> 00:03:50,420 | 新的发展的态势之下 |  |
| 108 | 00:03:50,680 --> 00:03:52,097 | 开源的作用 |  |
| 109 | 00:03:52,097 --> 00:03:55,020 | 从国家层面上已经非常重视 |  |
| 110 | 00:03:55,021 --> 00:03:56,900 | 我相信我们现在开始 |  |
| 111 | 00:03:56,901 --> 00:03:59,951 | 我们中国是从开源大国 |  |
| 112 | 00:03:59,951 --> 00:04:01,480 | 走向开源强国 |  |
| 113 | 00:04:01,896 --> 00:04:04,740 | 其中今天我们这一代 |  |
| 114 | 00:04:05,080 --> 00:04:07,340 | 发挥应该是很重要的一部分 |  |
| 115 | 00:04:09,050 --> 00:04:10,734 | 还有开源给我们 |  |
| 116 | 00:04:10,734 --> 00:04:12,150 | 我们在做制造 |  |
| 117 | 00:04:13,691 --> 00:04:18,010 | HR它应该是未来几年推动新技术发展 |  |
| 118 | 00:04:18,090 --> 00:04:19,750 | 特别是信息技术发展的 |  |
| 119 | 00:04:19,750 --> 00:04:21,190 | 一个非常重要的一个价值 |  |
| 120 | 00:04:21,963 --> 00:04:24,580 | 这里我再给大家特别要讲的 |  |
| 121 | 00:04:26,278 --> 00:04:27,940 | 对RISC-V的重视 |  |
| 122 | 00:04:27,941 --> 00:04:29,183 | 不仅是我们 |  |
| 123 | 00:04:29,183 --> 00:04:31,800 | 从一个芯片的设计者来看 |  |
| 124 | 00:04:32,405 --> 00:04:35,421 | 还是一个学校教学这方面来看 |  |
| 125 | 00:04:35,421 --> 00:04:36,245 | 这不够 |  |
| 126 | 00:04:36,405 --> 00:04:38,305 | 我们必须提到一个新的高度 |  |
| 127 | 00:04:38,306 --> 00:04:40,045 | 在中国当前情况来讲 |  |
| 128 | 00:04:40,345 --> 00:04:44,020 | 我们CPU这个架构对芯片产业 |  |
| 129 | 00:04:44,733 --> 00:04:47,105 | 有相当的作用 |  |
| 130 | 00:04:47,106 --> 00:04:48,621 | 我们是引领作用 |  |
| 131 | 00:04:48,621 --> 00:04:49,845 | 芯片的设计 |  |
| 132 | 00:04:49,965 --> 00:04:52,212 | 芯片的架构影响芯片设计 |  |
| 133 | 00:04:52,212 --> 00:04:53,205 | 毫无疑问 |  |
| 134 | 00:04:53,285 --> 00:04:54,471 | 你设计一个芯片 |  |
| 135 | 00:04:54,471 --> 00:04:55,485 | 你设计【】 |  |
| 136 | 00:04:55,486 --> 00:04:56,865 | 那还是【】还是【】 |  |
| 137 | 00:04:57,505 --> 00:04:58,900 | 当然是不同的 |  |
| 138 | 00:04:58,900 --> 00:05:00,520 | 应用生态一样 |  |
| 139 | 00:05:00,760 --> 00:05:01,790 | 生态往往 |  |
| 140 | 00:05:01,790 --> 00:05:05,440 | 和他们这种所谓【】的这种应用软件 |  |
| 141 | 00:05:05,640 --> 00:05:07,640 | 和CPU架构很有关系 |  |
| 142 | 00:05:08,378 --> 00:05:09,440 | 但是不够 |  |
| 143 | 00:05:09,750 --> 00:05:12,006 | 光是把CPU架构 |  |
| 144 | 00:05:12,006 --> 00:05:14,670 | 看作影响到CPU本身 |  |
| 145 | 00:05:14,970 --> 00:05:17,071 | 设计本身已经影响到本身 |  |
| 146 | 00:05:17,071 --> 00:05:17,890 | 还是不够的 |  |
| 147 | 00:05:18,570 --> 00:05:20,570 | 对整个的芯片产业 |  |
| 148 | 00:05:21,380 --> 00:05:24,340 | 或者半导体产品来讲非常重要 |  |
| 149 | 00:05:24,580 --> 00:05:25,580 | 有引领作用 |  |
| 150 | 00:05:26,100 --> 00:05:29,520 | 就是芯片因为架构是源头 |  |
| 151 | 00:05:30,350 --> 00:05:32,790 | 我们说引领作用它会 |  |
| 152 | 00:05:32,870 --> 00:05:34,370 | 影响到人才培养 |  |
| 153 | 00:05:34,570 --> 00:05:36,670 | 影响EDA工具 |  |
| 154 | 00:05:36,730 --> 00:05:37,718 | 影响IP库 |  |
| 155 | 00:05:37,718 --> 00:05:39,450 | 影响到芯片生产 测试 |  |
| 156 | 00:05:39,451 --> 00:05:41,030 | 封装等等一些生产 |  |
| 157 | 00:05:41,675 --> 00:05:43,715 | 所以我们应该提高一下 |  |
| 158 | 00:05:43,935 --> 00:05:47,215 | 把RISC-V对今天中国芯片产业的影响 |  |
| 159 | 00:05:48,375 --> 00:05:51,315 | 不要把它光看成是个架构 |  |
| 160 | 00:05:51,395 --> 00:05:53,255 | 影响设计和生源不够 |  |
| 161 | 00:05:54,451 --> 00:05:57,645 | 我从一个外地来讲一个 |  |
| 162 | 00:05:58,225 --> 00:05:59,837 | 进步会更强 |  |
| 163 | 00:05:59,837 --> 00:06:01,925 | 但是他第二条讲到 |  |
| 164 | 00:06:02,271 --> 00:06:06,251 | 目前微处理器的SoC的芯片 |  |
| 165 | 00:06:06,628 --> 00:06:07,518 | 应用来看 |  |
| 166 | 00:06:07,518 --> 00:06:08,545 | 或我产品来看 |  |
| 167 | 00:06:09,165 --> 00:06:10,973 | 其实那些产品很多类型 |  |
| 168 | 00:06:10,973 --> 00:06:11,605 | 大家知道 |  |
| 169 | 00:06:11,745 --> 00:06:13,445 | 以前的【】 |  |
| 170 | 00:06:13,446 --> 00:06:15,109 | 【】等等 |  |
| 171 | 00:06:15,109 --> 00:06:17,225 | 现在来看 |  |
| 172 | 00:06:17,365 --> 00:06:20,983 | 目前随着世界芯片产业的发展 |  |
| 173 | 00:06:21,381 --> 00:06:23,720 | SoC这类芯片的比重 |  |
| 174 | 00:06:23,860 --> 00:06:26,620 | 在整个芯片产业的产品之中 |  |
| 175 | 00:06:26,900 --> 00:06:28,700 | 占到70%左右 |  |
| 176 | 00:06:33,609 --> 00:06:34,335 | 大家看 |  |
| 177 | 00:06:35,355 --> 00:06:38,215 | 这个是比如2021年来看3个 |  |
| 178 | 00:06:38,255 --> 00:06:39,595 | 中间是3个 |  |
| 179 | 00:06:39,815 --> 00:06:41,646 | 70%左右的 |  |
| 180 | 00:06:41,646 --> 00:06:42,653 | 都是SoC |  |
| 181 | 00:06:42,653 --> 00:06:44,215 | 不同类型的SoC |  |
| 182 | 00:06:44,618 --> 00:06:49,640 | 原来在这里还有那个【】 |  |
| 183 | 00:06:52,121 --> 00:06:54,620 | 还有各种各样的IP业等等 |  |
| 184 | 00:06:55,445 --> 00:06:58,226 | 但是你看最大这个其实 |  |
| 185 | 00:06:58,226 --> 00:07:00,085 | 绿的 深绿的 |  |
| 186 | 00:07:00,385 --> 00:07:02,845 | 紫色的 3块都是SoC |  |
| 187 | 00:07:02,885 --> 00:07:03,985 | 这个趋势会更大 |  |
| 188 | 00:07:04,285 --> 00:07:06,853 | 意味着CPU不同的架构 |  |
| 189 | 00:07:06,853 --> 00:07:08,175 | SoC不一样 |  |
| 190 | 00:07:08,955 --> 00:07:10,843 | 所以它还影响到 |  |
| 191 | 00:07:10,843 --> 00:07:15,985 | 整个芯片产品的份例 |  |
| 192 | 00:07:16,159 --> 00:07:17,028 | 比重 |  |
| 193 | 00:07:17,990 --> 00:07:18,730 | 所以你要想 |  |
| 194 | 00:07:19,290 --> 00:07:21,970 | 它的影响就远远超出了我们一般 |  |
| 195 | 00:07:22,130 --> 00:07:22,950 | 就是个架构 |  |
| 196 | 00:07:22,990 --> 00:07:24,950 | 就这个CPU是不对 |  |
| 197 | 00:07:25,290 --> 00:07:27,000 | 整个的芯片产业 |  |
| 198 | 00:07:27,000 --> 00:07:29,570 | 会受到它或多或少的影响 |  |
| 199 | 00:07:29,828 --> 00:07:31,640 | 我们再看这个 |  |
| 200 | 00:07:31,640 --> 00:07:33,650 | 我们来估计一下它 |  |
| 201 | 00:07:34,298 --> 00:07:37,018 | 在中国很重要 |  |
| 202 | 00:07:37,130 --> 00:07:39,590 | 中国芯片CPU价格有多少 |  |
| 203 | 00:07:40,515 --> 00:07:41,395 | 很不好意思 |  |
| 204 | 00:07:41,396 --> 00:07:45,575 | 我们是在真的做的至少有7种 |  |
| 205 | 00:07:46,315 --> 00:07:48,435 | 比世界其他国家都要多 |  |
| 206 | 00:07:48,721 --> 00:07:50,928 | 是不是7种都会发展的 |  |
| 207 | 00:07:50,928 --> 00:07:51,995 | 根据经验 |  |
| 208 | 00:07:52,515 --> 00:07:54,081 | 芯片产业的经营 |  |
| 209 | 00:07:54,081 --> 00:07:56,275 | 大概最后发展若干年以后 |  |
| 210 | 00:07:56,276 --> 00:08:00,175 | 大概会有很少很少集中在市场上有 |  |
| 211 | 00:08:01,735 --> 00:08:03,135 | 你可以做但是做不大 |  |
| 212 | 00:08:04,335 --> 00:08:05,435 | 在这种情况之下 |  |
| 213 | 00:08:05,552 --> 00:08:08,515 | 我们如果这种情况不加以调整 |  |
| 214 | 00:08:08,516 --> 00:08:11,075 | 假如我们把芯片产业严重 |  |
| 215 | 00:08:11,315 --> 00:08:13,059 | 我们集中架构 |  |
| 216 | 00:08:13,059 --> 00:08:15,735 | 并行的去启动生产产业链 |  |
| 217 | 00:08:16,156 --> 00:08:17,795 | 大家说不是很合理的 |  |
| 218 | 00:08:17,835 --> 00:08:20,555 | 所以我们提出一个说法 |  |
| 219 | 00:08:20,555 --> 00:08:21,615 | 可以研究 |  |
| 220 | 00:08:21,880 --> 00:08:23,580 | 我在写的适当聚焦 |  |
| 221 | 00:08:23,581 --> 00:08:25,193 | RISC-V发出来 |  |
| 222 | 00:08:25,193 --> 00:08:27,300 | 发展中国的新人才适当聚焦 |  |
| 223 | 00:08:27,440 --> 00:08:29,134 | 还是要考虑到 |  |
| 224 | 00:08:29,134 --> 00:08:31,480 | 未来若干年的情况 |  |
| 225 | 00:08:31,920 --> 00:08:33,559 | 有可能他适当聚焦 |  |
| 226 | 00:08:33,559 --> 00:08:34,900 | 那意味着我们的 |  |
| 227 | 00:08:35,080 --> 00:08:36,740 | 芯片产业链 |  |
| 228 | 00:08:37,500 --> 00:08:39,320 | 把主线放在 |  |
| 229 | 00:08:39,800 --> 00:08:41,068 | 基于历史反复 |  |
| 230 | 00:08:41,068 --> 00:08:42,740 | 这样一个架构的产业链 |  |
| 231 | 00:08:43,322 --> 00:08:46,105 | 不像你要一定要开发 |  |
| 232 | 00:08:47,496 --> 00:08:48,934 | CPU设计 |  |
| 233 | 00:08:48,934 --> 00:08:50,131 | 工具来讲 |  |
| 234 | 00:08:51,390 --> 00:08:53,751 | 不同的架构的设计工艺有所不同 |  |
| 235 | 00:08:53,751 --> 00:08:54,870 | 特别优化 |  |
| 236 | 00:08:55,210 --> 00:08:56,853 | 我下面会讲到 |  |
| 237 | 00:08:56,853 --> 00:08:58,750 | 优化和人才培养来说 |  |
| 238 | 00:08:59,425 --> 00:09:03,005 | 你肯定EDA工艺如果支持7/8种 |  |
| 239 | 00:09:03,006 --> 00:09:04,375 | CPU架构 |  |
| 240 | 00:09:04,375 --> 00:09:06,345 | 和支持1种哪个好做 |  |
| 241 | 00:09:07,862 --> 00:09:08,962 | 不言而喻了 |  |
| 242 | 00:09:09,745 --> 00:09:10,209 | 第二 |  |
| 243 | 00:09:10,209 --> 00:09:11,625 | IP开发很重要 |  |
| 244 | 00:09:11,985 --> 00:09:12,903 | IP开发 |  |
| 245 | 00:09:12,903 --> 00:09:14,645 | 如果我们面向某一个架构 |  |
| 246 | 00:09:14,646 --> 00:09:18,385 | 基于特别基于芯片厂的物理设计 |  |
| 247 | 00:09:18,825 --> 00:09:21,525 | 搞出了非常完善的RISC-V的支持 |  |
| 248 | 00:09:22,065 --> 00:09:25,265 | 做新品现在大家知道容易的多 |  |
| 249 | 00:09:25,266 --> 00:09:26,445 | 产品容易多了 |  |
| 250 | 00:09:27,385 --> 00:09:28,353 | 就有一些人才培养 |  |
| 251 | 00:09:28,353 --> 00:09:29,685 | 这个是很好的例子 |  |
| 252 | 00:09:30,285 --> 00:09:34,145 | 我们基于RISC-V这种出来以后 |  |
| 253 | 00:09:34,285 --> 00:09:38,085 | 这种灵敏设计工艺和RISC-V机构 |  |
| 254 | 00:09:38,520 --> 00:09:39,200 | 结合起来 |  |
| 255 | 00:09:39,201 --> 00:09:39,936 | 我发现 |  |
| 256 | 00:09:39,936 --> 00:09:43,925 | 培养一个设计工程师容易的多 |  |
| 257 | 00:09:43,985 --> 00:09:46,845 | 因为我下面也会给予这材料 |  |
| 258 | 00:09:47,025 --> 00:09:48,845 | 据说被国科大在做的 |  |
| 259 | 00:09:48,846 --> 00:09:50,431 | 他们大概四五个月 |  |
| 260 | 00:09:50,431 --> 00:09:52,245 | 一个团队能够培养出来 |  |
| 261 | 00:09:52,246 --> 00:09:54,280 | 能够设计芯片了 |  |
| 262 | 00:09:55,460 --> 00:09:57,080 | 这个SoC怎么可以做 |  |
| 263 | 00:09:57,693 --> 00:09:58,456 | 大家知道 |  |
| 264 | 00:09:58,456 --> 00:09:59,520 | 这在过去来讲 |  |
| 265 | 00:09:59,522 --> 00:10:02,161 | 可能几年用【】 |  |
| 266 | 00:10:02,161 --> 00:10:04,400 | 这种制度 |  |
| 267 | 00:10:05,015 --> 00:10:07,043 | 大大加速了 |  |
| 268 | 00:10:07,043 --> 00:10:08,095 | 人才培养 |  |
| 269 | 00:10:08,096 --> 00:10:09,575 | 缩短培养的收取 |  |
| 270 | 00:10:10,115 --> 00:10:11,084 | 对于中国 |  |
| 271 | 00:10:11,084 --> 00:10:13,835 | 我们巨大的人才资源的发挥 |  |
| 272 | 00:10:13,895 --> 00:10:14,800 | 在芯片的发挥 |  |
| 273 | 00:10:14,800 --> 00:10:15,675 | 应该是有好处的 |  |
| 274 | 00:10:16,870 --> 00:10:19,210 | 所以我们从这来看 |  |
| 275 | 00:10:19,330 --> 00:10:22,410 | 可以通过适当聚焦 |  |
| 276 | 00:10:23,410 --> 00:10:25,790 | 我们对于这个几个环节 |  |
| 277 | 00:10:25,791 --> 00:10:27,243 | 刚刚我说设计芯片 |  |
| 278 | 00:10:27,243 --> 00:10:28,290 | 设计的环节 |  |
| 279 | 00:10:28,291 --> 00:10:30,950 | 已经和XX相关的一对一开发 |  |
| 280 | 00:10:30,951 --> 00:10:32,290 | 工艺的IP开发 |  |
| 281 | 00:10:33,190 --> 00:10:34,350 | 以及人才培养 |  |
| 282 | 00:10:34,351 --> 00:10:35,343 | 以及生态 |  |
| 283 | 00:10:36,396 --> 00:10:37,530 | 前面讲的生态 |  |
| 284 | 00:10:37,530 --> 00:10:40,250 | 支持不同架构的生态的不一样 |  |
| 285 | 00:10:40,670 --> 00:10:41,946 | 所以我们认为 |  |
| 286 | 00:10:41,946 --> 00:10:44,230 | 中国如果在适当聚焦以后 |  |
| 287 | 00:10:44,231 --> 00:10:46,170 | 对于中国芯片产业的发展 |  |
| 288 | 00:10:46,593 --> 00:10:47,905 | 这样会有很大的好处 |  |
| 289 | 00:10:48,605 --> 00:10:51,245 | 大大加快我们芯片发展的速度 |  |
| 290 | 00:10:51,505 --> 00:10:52,500 | 所以这是 |  |
| 291 | 00:10:52,500 --> 00:10:53,905 | 我们给有关方面的 |  |
| 292 | 00:10:54,515 --> 00:10:55,965 | 提出的一些建议 |  |
| 293 | 00:10:56,125 --> 00:10:57,285 | 所以今天我们来讲 |  |
| 294 | 00:10:57,660 --> 00:11:00,620 | 不建议我们对CPU架构感兴趣 |  |
| 295 | 00:11:00,700 --> 00:11:02,800 | 设计感兴趣或应用感兴趣 |  |
| 296 | 00:11:03,300 --> 00:11:04,700 | 整个芯片产业 |  |
| 297 | 00:11:04,700 --> 00:11:05,520 | 各个环节 |  |
| 298 | 00:11:06,040 --> 00:11:07,565 | 应当这都很关注 |  |
| 299 | 00:11:07,565 --> 00:11:08,800 | 历史发展的发展 |  |
| 300 | 00:11:09,060 --> 00:11:12,140 | 对中国新科技车间自立自强 |  |
| 301 | 00:11:12,480 --> 00:11:14,240 | 应该是有一个很好的 |  |
| 302 | 00:11:14,240 --> 00:11:15,540 | 一个解决的方案 |  |
| 303 | 00:11:17,090 --> 00:11:19,460 | 我们看到这个前途在哪儿呢 |  |
| 304 | 00:11:19,461 --> 00:11:21,120 | 大家都很明白 |  |
| 305 | 00:11:21,360 --> 00:11:24,280 | 我们中国最大好处就是 |  |
| 306 | 00:11:24,460 --> 00:11:25,620 | 举国体制的优势 |  |
| 307 | 00:11:25,621 --> 00:11:26,309 | 人才优势 |  |
| 308 | 00:11:26,309 --> 00:11:28,440 | 还有一个超大规模市场优势 |  |
| 309 | 00:11:29,150 --> 00:11:30,450 | 特别新一代信息技术 |  |
| 310 | 00:11:30,451 --> 00:11:31,465 | 中国现在 |  |
| 311 | 00:11:31,465 --> 00:11:33,050 | 在世界上有可能 |  |
| 312 | 00:11:33,356 --> 00:11:36,090 | 我们在某种方面领先 |  |
| 313 | 00:11:36,150 --> 00:11:38,650 | 像5G我们已经做到了互联网 |  |
| 314 | 00:11:38,651 --> 00:11:39,830 | 我觉得就业的应用 |  |
| 315 | 00:11:39,831 --> 00:11:41,430 | 中国也可能会有些 |  |
| 316 | 00:11:42,570 --> 00:11:45,570 | 世界上大量的一些电器 |  |
| 317 | 00:11:45,571 --> 00:11:46,090 | 毫无疑问 |  |
| 318 | 00:11:46,091 --> 00:11:46,984 | 中国队有 |  |
| 319 | 00:11:46,984 --> 00:11:47,915 | 生产最多 |  |
| 320 | 00:11:47,915 --> 00:11:49,810 | 今后的物联网的设备 |  |
| 321 | 00:11:50,050 --> 00:11:50,950 | 边缘设备 |  |
| 322 | 00:11:51,306 --> 00:11:53,156 | iot设备等等 |  |
| 323 | 00:11:53,156 --> 00:11:54,850 | AI设备等等 |  |
| 324 | 00:11:55,785 --> 00:11:56,818 | 用的设备 |  |
| 325 | 00:11:56,818 --> 00:11:58,745 | 软件和应用 |  |
| 326 | 00:11:58,785 --> 00:12:01,185 | 中国肯定会带动世界的发展 |  |
| 327 | 00:12:01,505 --> 00:12:02,665 | 最大的困难就是中国 |  |
| 328 | 00:12:02,685 --> 00:12:04,396 | 所以中国将来 |  |
| 329 | 00:12:04,396 --> 00:12:06,165 | 主要用什么芯片 |  |
| 330 | 00:12:06,445 --> 00:12:07,245 | 什么设计 |  |
| 331 | 00:12:07,935 --> 00:12:09,659 | 世界性芯片产业 |  |
| 332 | 00:12:09,659 --> 00:12:12,075 | 肯定会受到非常大的影响 |  |
| 333 | 00:12:12,535 --> 00:12:13,575 | 所以我们看右边 |  |
| 334 | 00:12:14,375 --> 00:12:15,435 | 在互联网 |  |
| 335 | 00:12:15,675 --> 00:12:18,835 | 时代的主要【】占了很大的优势 |  |
| 336 | 00:12:19,821 --> 00:12:21,200 | 到了移动互联网 |  |
| 337 | 00:12:21,240 --> 00:12:23,400 | 我们看到ARM的价格占了优势 |  |
| 338 | 00:12:23,840 --> 00:12:25,420 | 但现在最新的 |  |
| 339 | 00:12:26,060 --> 00:12:27,243 | 最快的互联网 |  |
| 340 | 00:12:27,243 --> 00:12:28,620 | 其实以物联网 |  |
| 341 | 00:12:28,680 --> 00:12:30,378 | AI等为代表的 |  |
| 342 | 00:12:30,378 --> 00:12:32,680 | 新一代信息技术的情况 |  |
| 343 | 00:12:32,900 --> 00:12:33,720 | 我们希望那时 |  |
| 344 | 00:12:33,768 --> 00:12:35,556 | 大家会占到市场上 |  |
| 345 | 00:12:35,556 --> 00:12:37,240 | 一个重大的地位 |  |
| 346 | 00:12:38,140 --> 00:12:39,780 | 这样我们可以知道 |  |
| 347 | 00:12:39,940 --> 00:12:41,993 | 我们如果传统里面 |  |
| 348 | 00:12:41,993 --> 00:12:44,225 | 做不到和【】 |  |
| 349 | 00:12:45,505 --> 00:12:47,493 | 这也是我们的建筑什么 |  |
| 350 | 00:12:47,493 --> 00:12:48,485 | 都可以做的 |  |
| 351 | 00:12:48,685 --> 00:12:49,965 | 在新的领域 |  |
| 352 | 00:12:49,965 --> 00:12:51,445 | 没有理由做不好 |  |
| 353 | 00:12:52,575 --> 00:12:53,275 | 这样我们 |  |
| 354 | 00:12:53,575 --> 00:12:55,875 | 认为【】开放指令 |  |
| 355 | 00:12:55,875 --> 00:12:58,115 | 就是破解中国iot |  |
| 356 | 00:12:58,555 --> 00:13:00,015 | 生态碎片化的观念 |  |
| 357 | 00:13:00,215 --> 00:13:03,495 | 我们围绕着RISC-V来推广我们的 |  |
| 358 | 00:13:03,495 --> 00:13:04,521 | 相关新一代 |  |
| 359 | 00:13:04,521 --> 00:13:05,695 | 信息技术的应用 |  |
| 360 | 00:13:05,696 --> 00:13:07,275 | 应该是个很好的方向 |  |
| 361 | 00:13:07,975 --> 00:13:09,135 | 而其他这个协议 |  |
| 362 | 00:13:09,670 --> 00:13:10,270 | 情况 |  |
| 363 | 00:13:11,330 --> 00:13:12,690 | 很多人都讲过了 |  |
| 364 | 00:13:12,691 --> 00:13:15,350 | 比如说我们希望这个门槛 |  |
| 365 | 00:13:15,351 --> 00:13:17,810 | 我这里讲的3-5个工程 |  |
| 366 | 00:13:17,811 --> 00:13:20,130 | 3-5个月的开发周期 |  |
| 367 | 00:13:20,587 --> 00:13:23,360 | 这是我用过科大的数据 |  |
| 368 | 00:13:23,361 --> 00:13:26,080 | 他们培训下面我也有图 |  |
| 369 | 00:13:26,220 --> 00:13:28,884 | 就是培训一个小团队 |  |
| 370 | 00:13:28,884 --> 00:13:30,480 | 来做这个设计 |  |
| 371 | 00:13:30,520 --> 00:13:31,780 | 这也是可以做到的 |  |
| 372 | 00:13:32,595 --> 00:13:33,995 | 所以这个是过去 |  |
| 373 | 00:13:34,075 --> 00:13:36,935 | 我们传统的家族传统的这种 |  |
| 374 | 00:13:37,331 --> 00:13:38,895 | 方法达不到 |  |
| 375 | 00:13:39,331 --> 00:13:40,881 | 所以这是一个 |  |
| 376 | 00:13:40,881 --> 00:13:43,455 | 我们将来加速度过量发展 |  |
| 377 | 00:13:43,895 --> 00:13:45,650 | 加速中国芯片产业发展的 |  |
| 378 | 00:13:45,650 --> 00:13:46,495 | 很重要的方面 |  |
| 379 | 00:13:46,968 --> 00:13:49,625 | 大家也看到我们借鉴 |  |
| 380 | 00:13:49,625 --> 00:13:51,600 | 开源软件的经验 |  |
| 381 | 00:13:51,780 --> 00:13:53,315 | 我们如果做好了 |  |
| 382 | 00:13:53,315 --> 00:13:54,800 | 开源硬件的平台 |  |
| 383 | 00:13:55,040 --> 00:13:56,643 | 我们90% |  |
| 384 | 00:13:56,643 --> 00:13:58,469 | 可能以上都是可以用 |  |
| 385 | 00:13:58,561 --> 00:13:59,560 | 取之于开源 |  |
| 386 | 00:14:00,055 --> 00:14:01,715 | 只有10%左右 |  |
| 387 | 00:14:01,715 --> 00:14:03,235 | 可能需要定制一下 |  |
| 388 | 00:14:03,775 --> 00:14:05,284 | 我们开发一个 |  |
| 389 | 00:14:05,284 --> 00:14:06,556 | 相关的芯片的 |  |
| 390 | 00:14:06,556 --> 00:14:07,575 | 产品和应用 |  |
| 391 | 00:14:07,695 --> 00:14:08,975 | 将会容易得多 |  |
| 392 | 00:14:11,106 --> 00:14:13,400 | 大家知道 |  |
| 393 | 00:14:13,431 --> 00:14:14,903 | 正在进行的 |  |
| 394 | 00:14:14,903 --> 00:14:16,660 | 新的设计的改革 |  |
| 395 | 00:14:16,960 --> 00:14:18,071 | 我们知道芯片 |  |
| 396 | 00:14:18,071 --> 00:14:19,460 | 设计的门槛很高的 |  |
| 397 | 00:14:19,850 --> 00:14:21,640 | 能够降低门槛 |  |
| 398 | 00:14:21,640 --> 00:14:23,810 | 使得我们大众创新 |  |
| 399 | 00:14:23,811 --> 00:14:24,650 | 万众创业 |  |
| 400 | 00:14:24,810 --> 00:14:26,134 | 中小企业能够 |  |
| 401 | 00:14:26,134 --> 00:14:27,730 | 在芯片里面做创新 |  |
| 402 | 00:14:28,050 --> 00:14:30,330 | 我觉得发挥是很好的一种方式 |  |
| 403 | 00:14:30,610 --> 00:14:32,110 | 是一个很好的一个存在 |  |
| 404 | 00:14:32,395 --> 00:14:33,531 | 要不我们可能 |  |
| 405 | 00:14:33,531 --> 00:14:34,415 | 需要大家想 |  |
| 406 | 00:14:34,416 --> 00:14:35,935 | 我们做一个传统的 |  |
| 407 | 00:14:36,135 --> 00:14:38,015 | 比如说这就像切纳米工艺 |  |
| 408 | 00:14:38,015 --> 00:14:39,015 | 要上千万美元 |  |
| 409 | 00:14:39,595 --> 00:14:40,443 | 上千人一年 |  |
| 410 | 00:14:40,443 --> 00:14:42,015 | 这是有些公司提供的 |  |
| 411 | 00:14:42,840 --> 00:14:44,880 | 所以这是很大的一个公开 |  |
| 412 | 00:14:45,360 --> 00:14:47,120 | 我们要大大降低这个门槛 |  |
| 413 | 00:14:47,900 --> 00:14:49,700 | 这里我很简单的比较 |  |
| 414 | 00:14:50,634 --> 00:14:52,580 | 比较一个架构很难的 |  |
| 415 | 00:14:52,581 --> 00:14:53,800 | 我们大家可以看一下 |  |
| 416 | 00:14:54,259 --> 00:14:57,579 | 我们把6/7/8最通用的 |  |
| 417 | 00:14:57,660 --> 00:14:59,880 | 世上最流行的【】 |  |
| 418 | 00:15:00,143 --> 00:15:01,950 | 他们的有无阶段同等 |  |
| 419 | 00:15:01,951 --> 00:15:02,675 | 我认为是 |  |
| 420 | 00:15:02,675 --> 00:15:03,978 | 不是比较好的地方 |  |
| 421 | 00:15:03,978 --> 00:15:04,750 | 还有一个 |  |
| 422 | 00:15:04,910 --> 00:15:06,730 | 大家看一下生态环境 |  |
| 423 | 00:15:06,890 --> 00:15:08,687 | 因为没有过去的 |  |
| 424 | 00:15:08,687 --> 00:15:09,850 | 既有的环境 |  |
| 425 | 00:15:09,851 --> 00:15:11,650 | 查不了他们所控制 |  |
| 426 | 00:15:11,828 --> 00:15:13,400 | 所以它需要 |  |
| 427 | 00:15:13,400 --> 00:15:15,878 | 靠新的领域来支撑 |  |
| 428 | 00:15:16,214 --> 00:15:18,860 | 我们信息技术发展快 |  |
| 429 | 00:15:19,020 --> 00:15:20,921 | 所以即使传统领域 |  |
| 430 | 00:15:20,921 --> 00:15:22,020 | 我们不能 |  |
| 431 | 00:15:22,580 --> 00:15:25,580 | 达到差不多那么大的高度 |  |
| 432 | 00:15:26,103 --> 00:15:27,953 | 我们新的领域 |  |
| 433 | 00:15:27,953 --> 00:15:30,575 | 完全可以超过传统的 |  |
| 434 | 00:15:30,575 --> 00:15:34,415 | 还有大家看最后一条 |  |
| 435 | 00:15:35,015 --> 00:15:36,235 | 虽然是开源 |  |
| 436 | 00:15:36,335 --> 00:15:39,495 | 但是我们因为用psd许可证 |  |
| 437 | 00:15:39,750 --> 00:15:41,890 | 你完全可能以后就不用开源 |  |
| 438 | 00:15:41,891 --> 00:15:46,570 | 有的人可能是做了很多改进 |  |
| 439 | 00:15:46,571 --> 00:15:48,487 | 但是它不开源了 |  |
| 440 | 00:15:48,487 --> 00:15:50,580 | 你也可能是这样 |  |
| 441 | 00:15:50,581 --> 00:15:51,828 | 有可能有人说 |  |
| 442 | 00:15:51,828 --> 00:15:52,760 | 变成碎片化 |  |
| 443 | 00:15:53,478 --> 00:15:56,280 | 若干年以后你发现【】不统一了 |  |
| 444 | 00:15:56,420 --> 00:15:57,381 | 互不兼容了 |  |
| 445 | 00:15:57,381 --> 00:15:58,560 | 这是有可能的 |  |
| 446 | 00:15:58,740 --> 00:16:01,420 | 但是我相信如果我们加强 |  |
| 447 | 00:16:01,420 --> 00:16:03,450 | 现在我们有基金会 |  |
| 448 | 00:16:03,450 --> 00:16:04,280 | 瑞士流 |  |
| 449 | 00:16:04,640 --> 00:16:05,704 | 中国相应的 |  |
| 450 | 00:16:05,704 --> 00:16:07,500 | 我们已经有一些联盟 |  |
| 451 | 00:16:07,845 --> 00:16:10,309 | 我们还会是在中国相应的 |  |
| 452 | 00:16:10,309 --> 00:16:11,645 | 做更多的协调 |  |
| 453 | 00:16:11,725 --> 00:16:13,745 | 特别国家非常重视 |  |
| 454 | 00:16:13,805 --> 00:16:17,045 | 提出了做创新机制这些工作 |  |
| 455 | 00:16:17,305 --> 00:16:18,184 | 来加强 |  |
| 456 | 00:16:18,184 --> 00:16:20,365 | 对科研工作的整合 |  |
| 457 | 00:16:20,712 --> 00:16:22,203 | 发挥我们国家 |  |
| 458 | 00:16:22,203 --> 00:16:24,350 | 新兴举国体制的优势 |  |
| 459 | 00:16:24,530 --> 00:16:25,970 | 那这个是应该有可能的 |  |
| 460 | 00:16:25,971 --> 00:16:28,410 | 所以我相信我们做好的话 |  |
| 461 | 00:16:28,450 --> 00:16:29,546 | 可以把生态 |  |
| 462 | 00:16:29,546 --> 00:16:31,710 | 不做碎片化的理解就好 |  |
| 463 | 00:16:31,930 --> 00:16:32,668 | 就专利问题 |  |
| 464 | 00:16:32,668 --> 00:16:35,210 | 像Linux foundation |  |
| 465 | 00:16:35,350 --> 00:16:38,550 | 【】这种对于既有的一些经验 |  |
| 466 | 00:16:38,895 --> 00:16:40,315 | 我们可以整合 |  |
| 467 | 00:16:40,315 --> 00:16:42,375 | 中国所有公司的专利 |  |
| 468 | 00:16:42,435 --> 00:16:43,575 | 形成相关的 |  |
| 469 | 00:16:43,575 --> 00:16:45,735 | 一个专利方面的保护等等 |  |
| 470 | 00:16:45,736 --> 00:16:47,775 | 具体我想不用去讲了 |  |
| 471 | 00:16:48,555 --> 00:16:50,493 | 最后目前我们看到 |  |
| 472 | 00:16:50,493 --> 00:16:52,355 | 已经做的两个联盟 |  |
| 473 | 00:16:52,356 --> 00:16:55,075 | 我们希望今后继续发展 |  |
| 474 | 00:16:55,715 --> 00:16:58,695 | 此外我们也看到Patterson本人在深圳 |  |
| 475 | 00:16:58,935 --> 00:17:00,078 | 和清华成立实验室 |  |
| 476 | 00:17:00,078 --> 00:17:02,175 | 也做了很多重要的工作 |  |
| 477 | 00:17:04,046 --> 00:17:05,478 | 我们看到 |  |
| 478 | 00:17:05,478 --> 00:17:07,080 | 和国际基金会之间的 |  |
| 479 | 00:17:07,784 --> 00:17:09,740 | 联系也在不断的加强 |  |
| 480 | 00:17:10,187 --> 00:17:12,940 | 这是第一届中国历史发展论坛 |  |
| 481 | 00:17:13,000 --> 00:17:14,415 | 以及在2019年 |  |
| 482 | 00:17:14,415 --> 00:17:15,640 | 在美国举办的时候 |  |
| 483 | 00:17:16,084 --> 00:17:18,405 | 这个研讨会的情况 |  |
| 484 | 00:17:19,285 --> 00:17:21,545 | 关于这个目前来讲 |  |
| 485 | 00:17:21,825 --> 00:17:23,365 | 我又回到我们 |  |
| 486 | 00:17:23,365 --> 00:17:25,865 | 对开源芯片的那些期望 |  |
| 487 | 00:17:26,065 --> 00:17:26,705 | 我们认为 |  |
| 488 | 00:17:26,903 --> 00:17:29,728 | 开源芯片在整个方面来讲 |  |
| 489 | 00:17:29,728 --> 00:17:31,220 | 是有很大的优势 |  |
| 490 | 00:17:31,360 --> 00:17:32,834 | 刚才我这个图 |  |
| 491 | 00:17:32,834 --> 00:17:34,420 | 已经借鉴的软件 |  |
| 492 | 00:17:34,421 --> 00:17:36,700 | 我知道很多开源软件 |  |
| 493 | 00:17:37,160 --> 00:17:38,725 | 如果基于开源软件 |  |
| 494 | 00:17:38,725 --> 00:17:40,380 | 发展一个软件的应用 |  |
| 495 | 00:17:40,460 --> 00:17:41,240 | 这个平台 |  |
| 496 | 00:17:41,805 --> 00:17:43,165 | 大数据带来的工作量 |  |
| 497 | 00:17:43,705 --> 00:17:45,745 | 开源也应该可以赢 |  |
| 498 | 00:17:46,045 --> 00:17:47,318 | 应该可能重复 |  |
| 499 | 00:17:47,318 --> 00:17:49,425 | 开源软件这个成功的范例 |  |
| 500 | 00:17:49,765 --> 00:17:52,865 | 中国的这个 |  |
| 501 | 00:17:52,865 --> 00:17:53,425 | 我看将来下了很多 |  |
| 502 | 00:17:53,426 --> 00:17:56,835 | 我要讲的还是很多很多 |  |
| 503 | 00:17:57,015 --> 00:17:58,853 | 中国目前的业界的 |  |
| 504 | 00:17:58,853 --> 00:18:00,595 | 企业和相关的单位 |  |
| 505 | 00:18:00,875 --> 00:18:03,793 | 都在市场对把生态的发展 |  |
| 506 | 00:18:03,793 --> 00:18:04,755 | 做出贡献 |  |
| 507 | 00:18:06,121 --> 00:18:10,120 | 比如说在这里讲的处理器和soc |  |
| 508 | 00:18:10,440 --> 00:18:12,940 | 我看这个不要详细讲 |  |
| 509 | 00:18:12,941 --> 00:18:14,387 | 下面其他 |  |
| 510 | 00:18:14,387 --> 00:18:17,015 | 具体单位我讲的更好 |  |
| 511 | 00:18:17,055 --> 00:18:18,875 | 大家看到了我们在 |  |
| 512 | 00:18:18,955 --> 00:18:19,784 | 各种不同的地方 |  |
| 513 | 00:18:19,784 --> 00:18:21,455 | 这个我就特别给大家提的 |  |
| 514 | 00:18:21,456 --> 00:18:22,515 | 就是不扩大 |  |
| 515 | 00:18:22,516 --> 00:18:27,035 | 通过使用【】开放指定键和汽车的语言 |  |
| 516 | 00:18:27,305 --> 00:18:28,821 | 我们可以做到 |  |
| 517 | 00:18:28,821 --> 00:18:30,045 | 5个本科生 |  |
| 518 | 00:18:30,046 --> 00:18:30,803 | 4个月 |  |
| 519 | 00:18:30,803 --> 00:18:32,985 | 完成一款68伏的 |  |
| 520 | 00:18:33,246 --> 00:18:34,748 | soc的设计工作 |  |
| 521 | 00:18:35,265 --> 00:18:36,768 | 所以这个 |  |
| 522 | 00:18:36,768 --> 00:18:38,965 | 过去我们传统的架构做到 |  |
| 523 | 00:18:39,762 --> 00:18:40,685 | 如果我们 |  |
| 524 | 00:18:40,785 --> 00:18:42,312 | 广泛的采用这个 |  |
| 525 | 00:18:42,312 --> 00:18:43,905 | 一切和我刚才说的 |  |
| 526 | 00:18:44,025 --> 00:18:45,406 | 我们有些意见项目已经 |  |
| 527 | 00:18:45,406 --> 00:18:46,885 | 给聚焦的RISC-V |  |
| 528 | 00:18:47,105 --> 00:18:48,965 | APP进行优化 |  |
| 529 | 00:18:49,345 --> 00:18:50,568 | 我们相信 |  |
| 530 | 00:18:50,568 --> 00:18:52,765 | 我们会把芯片的设计 |  |
| 531 | 00:18:53,280 --> 00:18:55,284 | 相应的产品的设计 |  |
| 532 | 00:18:55,284 --> 00:18:56,200 | 大大加速 |  |
| 533 | 00:18:56,540 --> 00:18:59,640 | 充分发挥RISC-V以及相关的 |  |
| 534 | 00:19:00,696 --> 00:19:02,840 | 工具方面的优势 |  |
| 535 | 00:19:02,841 --> 00:19:04,080 | 这里是国科大 |  |
| 536 | 00:19:04,260 --> 00:19:05,456 | 大家看到 |  |
| 537 | 00:19:05,456 --> 00:19:08,880 | 主受到的第3期日已经启动了 |  |
| 538 | 00:19:09,220 --> 00:19:11,812 | 6月份启动100个学生 |  |
| 539 | 00:19:12,535 --> 00:19:14,771 | 将来我们各个培训单位 |  |
| 540 | 00:19:14,771 --> 00:19:16,235 | 都采用这种方式 |  |
| 541 | 00:19:16,434 --> 00:19:18,875 | 那中国将会出现大批专家 |  |
| 542 | 00:19:19,275 --> 00:19:21,335 | RISC-V的专家迅速的 |  |
| 543 | 00:19:21,571 --> 00:19:22,735 | 推广应用 |  |
| 544 | 00:19:22,736 --> 00:19:24,281 | 所以我刚才说 |  |
| 545 | 00:19:24,281 --> 00:19:26,115 | 我们要在传统领域 |  |
| 546 | 00:19:26,116 --> 00:19:28,355 | 其实我们不如传统的价格 |  |
| 547 | 00:19:28,825 --> 00:19:32,105 | 新的领域超过【】和ARM架构 |  |
| 548 | 00:19:32,185 --> 00:19:33,665 | 应该是没有问题的 |  |
| 549 | 00:19:34,715 --> 00:19:36,005 | 开发环境方面 |  |
| 550 | 00:19:36,565 --> 00:19:37,468 | 就要信任 |  |
| 551 | 00:19:37,468 --> 00:19:39,365 | 这个我看展台上都有 |  |
| 552 | 00:19:39,715 --> 00:19:41,062 | 这是以前的时候 |  |
| 553 | 00:19:41,062 --> 00:19:43,035 | 他们实验室做的一些工作 |  |
| 554 | 00:19:44,056 --> 00:19:49,615 | 还有计算时所做的产品工具 |  |
| 555 | 00:19:49,616 --> 00:19:51,015 | 电话联系工作 |  |
| 556 | 00:19:51,365 --> 00:19:52,718 | 包括南京市在 |  |
| 557 | 00:19:52,718 --> 00:19:54,540 | 生态方面做的一些创新 |  |
| 558 | 00:19:55,206 --> 00:19:57,700 | 我看具体我不详细讲了 |  |
| 559 | 00:19:59,610 --> 00:20:01,230 | 最近也有些预测 |  |
| 560 | 00:20:01,290 --> 00:20:03,050 | 2025年全球 |  |
| 561 | 00:20:03,050 --> 00:20:05,209 | 60的出货达到600克 |  |
| 562 | 00:20:05,570 --> 00:20:07,890 | 2030年在数据中心 |  |
| 563 | 00:20:07,890 --> 00:20:09,390 | 这是他们的预测 |  |
| 564 | 00:20:09,837 --> 00:20:11,528 | 我希望我们的发展 |  |
| 565 | 00:20:11,528 --> 00:20:12,970 | 应该超过这个情况 |  |
| 566 | 00:20:13,321 --> 00:20:15,010 | 因为人有中国投入 |  |
| 567 | 00:20:15,430 --> 00:20:16,931 | 如果中国我们 |  |
| 568 | 00:20:16,931 --> 00:20:18,930 | 有世界最大的人力资源 |  |
| 569 | 00:20:19,550 --> 00:20:20,490 | 最大的市场 |  |
| 570 | 00:20:21,146 --> 00:20:23,895 | 如果RISC-V和中国能够加强 |  |
| 571 | 00:20:24,415 --> 00:20:26,715 | 在这方面的协调 |  |
| 572 | 00:20:26,795 --> 00:20:29,355 | 组织工作以及推广工作等等 |  |
| 573 | 00:20:29,895 --> 00:20:31,075 | 培训工作等等 |  |
| 574 | 00:20:31,260 --> 00:20:33,378 | 我们可以大大加速 |  |
| 575 | 00:20:33,378 --> 00:20:34,540 | 整个的发展 |  |
| 576 | 00:20:35,246 --> 00:20:38,260 | 我们看到这里就讲了 |  |
| 577 | 00:20:38,900 --> 00:20:40,440 | 在各个领域的应用 |  |
| 578 | 00:20:40,480 --> 00:20:41,678 | 工业上的应用 |  |
| 579 | 00:20:41,678 --> 00:20:42,706 | 车载设备 |  |
| 580 | 00:20:42,706 --> 00:20:43,620 | 终端设备 |  |
| 581 | 00:20:43,720 --> 00:20:44,840 | 物联网终端 |  |
| 582 | 00:20:44,840 --> 00:20:47,195 | 965000000开发者 |  |
| 583 | 00:20:47,878 --> 00:20:49,645 | 我不知道将来会有多少 |  |
| 584 | 00:20:49,745 --> 00:20:50,381 | 但我相信 |  |
| 585 | 00:20:50,381 --> 00:20:51,545 | 我们这个刚才说了 |  |
| 586 | 00:20:51,745 --> 00:20:54,825 | 我们在基于RISC-V这些工具的发展 |  |
| 587 | 00:20:55,065 --> 00:20:56,837 | 培训体系的发展 |  |
| 588 | 00:20:56,837 --> 00:20:58,205 | 将会大大加速 |  |
| 589 | 00:20:58,206 --> 00:21:00,125 | 可能比我画的更多 |  |
| 590 | 00:21:01,275 --> 00:21:03,475 | 这是我们对未来一个转化 |  |
| 591 | 00:21:03,655 --> 00:21:05,815 | 我好几次都拿这个图出来 |  |
| 592 | 00:21:06,306 --> 00:21:08,646 | 我们看到CPU的那里面 |  |
| 593 | 00:21:08,646 --> 00:21:09,675 | 芯片里面 |  |
| 594 | 00:21:09,676 --> 00:21:11,290 | 未来不会太多 |  |
| 595 | 00:21:11,290 --> 00:21:13,635 | 我这里只画3种 |  |
| 596 | 00:21:13,815 --> 00:21:15,015 | 几年以后你看到 |  |
| 597 | 00:21:15,155 --> 00:21:17,595 | 世界上大规模可能只有3种 |  |
| 598 | 00:21:18,055 --> 00:21:18,975 | 不一定对 |  |
| 599 | 00:21:18,975 --> 00:21:20,795 | 大家可以看看情况 |  |
| 600 | 00:21:21,475 --> 00:21:26,000 | 大体上我们看到【】已经是激情四射 |  |
| 601 | 00:21:26,320 --> 00:21:28,219 | 在相当长的时间 |  |
| 602 | 00:21:28,579 --> 00:21:32,040 | 程度里面会继续他的 |  |
| 603 | 00:21:32,840 --> 00:21:33,960 | 应该说主导的地方 |  |
| 604 | 00:21:35,109 --> 00:21:35,862 | 毫不犹豫在 |  |
| 605 | 00:21:36,878 --> 00:21:37,525 | 移动领域 |  |
| 606 | 00:21:37,981 --> 00:21:40,565 | 在工控一些以前 |  |
| 607 | 00:21:40,566 --> 00:21:42,300 | 一些一般的里面 |  |
| 608 | 00:21:42,300 --> 00:21:43,665 | 有很大的影响 |  |
| 609 | 00:21:44,128 --> 00:21:47,065 | 但是中间这里基于RISC-V的 |  |
| 610 | 00:21:47,359 --> 00:21:49,610 | 我们不管是哪家公司做的 |  |
| 611 | 00:21:49,890 --> 00:21:52,170 | 但是按GBSD的寿命 |  |
| 612 | 00:21:52,171 --> 00:21:53,100 | 你是来源于 |  |
| 613 | 00:21:53,100 --> 00:21:55,410 | 至少你的寿命是18了 |  |
| 614 | 00:21:56,468 --> 00:21:58,040 | 我们讲中间这 |  |
| 615 | 00:21:58,040 --> 00:22:00,230 | RISC-V将会随着 |  |
| 616 | 00:22:00,630 --> 00:22:01,534 | 我刚才说随着 |  |
| 617 | 00:22:01,534 --> 00:22:02,950 | 新一代信息技术的发展 |  |
| 618 | 00:22:03,130 --> 00:22:05,205 | 成为世界主流的 |  |
| 619 | 00:22:05,206 --> 00:22:07,965 | 那其他也会有很多很多种 |  |
| 620 | 00:22:08,065 --> 00:22:09,800 | 但是可能在市场上 |  |
| 621 | 00:22:09,800 --> 00:22:10,585 | 你会看到 |  |
| 622 | 00:22:10,765 --> 00:22:13,005 | 这三类是市场的主流 |  |
| 623 | 00:22:13,765 --> 00:22:15,545 | 希望能够达到这个要求 |  |
| 624 | 00:22:16,050 --> 00:22:18,015 | 最后我们总结一下 |  |
| 625 | 00:22:18,015 --> 00:22:18,850 | 我们认为 |  |
| 626 | 00:22:21,553 --> 00:22:23,265 | 开源软件从 |  |
| 627 | 00:22:23,265 --> 00:22:26,790 | 80年代上世纪开始以来 |  |
| 628 | 00:22:27,190 --> 00:22:28,921 | 这是已经我们知道 |  |
| 629 | 00:22:28,921 --> 00:22:30,370 | 它对全球的影响 |  |
| 630 | 00:22:30,430 --> 00:22:33,750 | 刚才说在90以上的互联网产品 |  |
| 631 | 00:22:34,585 --> 00:22:36,893 | 96%的商业应用 |  |
| 632 | 00:22:36,893 --> 00:22:37,825 | 对于互联网 |  |
| 633 | 00:22:38,065 --> 00:22:39,985 | 对于开源的技术的支撑 |  |
| 634 | 00:22:40,584 --> 00:22:42,475 | 在新一代信息技术 |  |
| 635 | 00:22:42,475 --> 00:22:43,780 | 我刚才也讲了 |  |
| 636 | 00:22:43,880 --> 00:22:46,380 | 开源软件大概有80%的 |  |
| 637 | 00:22:47,209 --> 00:22:48,156 | 贡献的 |  |
| 638 | 00:22:49,100 --> 00:22:50,640 | 这个到人员的 |  |
| 639 | 00:22:50,720 --> 00:22:52,134 | 一些开源的贡献 |  |
| 640 | 00:22:52,134 --> 00:22:53,420 | 在60%以上 |  |
| 641 | 00:22:53,675 --> 00:22:55,755 | 所以开源的重要性不一样 |  |
| 642 | 00:22:59,390 --> 00:23:02,715 | 我就讲到这里 |  |
| 643 | 00:23:02,775 --> 00:23:04,935 | 给大家一个参考 |  |
| 644 | 00:23:04,936 --> 00:23:06,534 | 有什么不对的地方 |  |
| 645 | 00:23:06,534 --> 00:23:07,350 | 请大家指正 |  |
| 646 | 00:23:07,690 --> 00:23:08,250 | 谢谢大家 |  |